# Budget deficit impact on trade balance and financial policy adjustments in Indonesia, 1971-1993

Widjaja, Chaerul Anam

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# BUDGET DEFICIT IMPACT ON TRADE BALANCE AND FINANCIAL POLICY ADJUSTMENTS IN INDONESIA, 1971-1993

Submitted by

CHAERUL ANAM WIDJAJA

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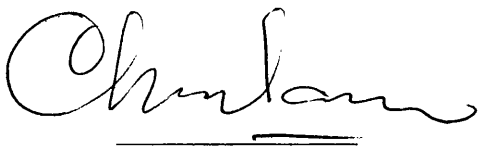

FACULTY OF HUMANITIES & SOCIAL SCIENCES
**DEPARTMENT OF ECONOMICS & INTERNATIONAL DEVELOPMENT**





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## Abstract

"Balanced budget" in Indonesia means there is no deliberate and persistent domestic monetary financing, and describes official foreign borrowing to finance the deficit as foreign "revenue". This policy in Indonesia has always been associated with the government's determination to conduct prudent and cautious fiscal policy on the assumption that this policy has no negative impact on the economy, compared to domestic monetary financing to finance the deficit. It is believed that fiscal policy in Indonesia skillfully blended with other policies, such as monetary policies and exchange rate policy, has been responsible for the success story of Indonesia's macroeconomic management, praised by many observers. In this connection, this study tries to examine the truths behind this assertion.

The findings show that "balanced" budget being financed by government's net resource inflow or net official (government) foreign borrowing minus foreign interest payment, has indeed no negative impacts on the trade balance, either in the long run or in the short run. Verifying that a case of "twin deficits" does not exist in Indonesia; however, the government, by no means, should not do cautious policies on foreign borrowing.

The noticeable rising amount of net resource transfer outflow for debts and interest payments, in the last few years having been persistently taking place up to the present, draw cautious and scrutiny supervisions. Other studies also revealed that public investment often crowds out private investment, typically when public enterprises compete with private firms.

In the meantime, surplus on balance of trade on oil, favourable real exchange rate, and world's economic growth have contributed positively

on the trade balance surplus, both in the long run and the short run. While gross domestic product has a negative impact on the balance of trade surplus.

Fiscal policy along with other financial policies is proven to be successful in achieving sustainable growth and maintaining stability of Indonesia economy, without succumbing to serious external debts. Non oil export and non oil GDP growth showed promising accomplishment. Open capital account policy, which was uniquely put in advance of other policy adjustments, necessitated the government to consistently implement very cautious monetary and exchange rate policies.

The policy option available for the government to affect balance of trade in the period of the study and in the future is to keep the real exchange rate at a competitive rate and to create always favourable trade climates. This task of achieving the proper real exchange rate falls on managing a moderate domestic inflation and adjusting a proper and timely nominal exchange rate. In daily practices, however, handling the former is not as easy as executing the later.

The critical policy implication is a constant effort to the government to promote non oil-exports, restrain imports, mobilise domestic savings and consistently maintain competitive exchange rates. These rigourous commitments would have to be met vigilantly and sensibly in the future. Implementing all of these policies in the face of a more competitive global economy nowadays has constantly become unavoidable challenges, should Indonesia wish not to be trapped in a serious debt problem.

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# CHAPTER I:
# INTRODUCTION

## 1.1. The aims of the study

No slogan or "catch-phrase" has been more central in the Indonesia's New Order economic philosophy than that of the "balanced" budget. It is no exaggeration to say that this policy has been regarded by many as one of the main underpinnings of the success story of the Indonesian economy. The remarkable success of the Indonesian economy has been cited by many observers including international institutions such as the World Bank and the IMF[1)].

The aims of this study are: first, to investigate whether there is an effect of fiscal deficit on the trade balance in Indonesia, or to ask: "Is there a case of twin deficit in Indonesia?"; and second, to examine and observe the Indonesia's financial policy adjustments and performance which give the background and have complementary and mutually enforcing aspects with the conduct of fiscal policy.

The "balanced" budget concept defined by the Indonesian government so far is simply the refusal to finance any deficit through money creation and to describe official foreign borrowing to finance the deficit as foreign "revenue". Although there is no money creation to finance the deficit, in this study we also take into account net government position *vis-à-vis* domestic monetary system namely "cash deficit" as a part of the source of deficit financing. In other words the study attempts to

examine how far it is true that this "balanced" budget has had no impact on the trade balance.

The belief that there is no "twin deficit" in Indonesia will might, on one hand, have given a sense of comfortable accomplishment to the policy makers in Indonesia, with their abiding by "balanced budget" policy. On the other hand awareness of the likely negative effect on the economy of budget deficit, mostly financed by official foreign borrowing, will perhaps move policy maker towards more efficient and effective use of foreign borrowing.

The second purpose of the study is to examine and observe the financial policy adjustments - with special emphasise on monetary and balance of payments policy - that have been implemented by Indonesian government mainly since 1980s in response to various kind of the external shocks. This second purpose on one hand, will give a related, complete and broader understanding of Indonesia's fiscal policy, which is the main aspect of the first aim of the study in the framework of macroeconomic policy. On the other hand, the financial adjustment policies have become interesting issue of the Indonesia's policy adjustments, as they are unique in being applied in a reverse sequence to that suggested by the theories.

## 1.2. The scope, methodology and limitation of the study

The scope of the study will primarily examine the budget deficit impacts on balance of trade and financial policy adjustments with special reference to Indonesia. In so doing the study will exercise on factors affecting trade balance of which budget deficit is one of the main determinants, by using linear regressions and to observe the policy

implications thereupon. Seen from the other side this study, considering the characteristic of source of budget deficit financing in Indonesia mentioned above, can also be regarded as a study on the effect of official foreign borrowing on the trade balance. From a balance of payment point of view this study can also be said to be a study on the effect of one of *accommodating* transaction (below the line); *official foreign borrowing,* on the main component of *autonomous* transactions (above the line); *balance of trade and services.*

Owing to inconsistency and non-availability of the data, all data have to be tested and some of them have to be interpolated and derived. Trying to find, to track and to get consistent data has been very time consuming and painstaking. Discussion of statistical issues and data derivations are discussed further in the Appendix I.

As the aims of the study are to examine the effect of budget deficit on the balance of trade, and to observe financial policy adjustments, it will not go any further by examining the sustainability of budget deficit which is in the case of Indonesia, at present has to mean the sustainability of official foreign borrowing or external debt.

## 1.3. Presentation of the study

We discuss the aims, scope and limitation of the study in Chapter One. Chapter Two surveys various competing theoretical approaches to explaining the determination of external balance, such as the elasticity approach, the absorption approach as well as monetary and the fiscal approach. In one of these approaches, the fiscal approach, discusses exclusively the effect of fiscal deficit on balance of payment.

Having discussed the theoretical approach to the balance of payments determination and the relevant approach to Indonesia, in Chapter Three, we examine how Indonesia as an oil exporting country responses to external shocks, taking the form mainly of the rises and falls of oil price. A series of broad range of adjustment measures launched by Indonesian government underline a proper macro economic management in maintaining macro economic stability and achieving sustainable economic growth. The discussion will also reveal the ineffectiveness of monetary policy and the effectiveness of fiscal policy in the macroeconomic stabilisation policy. Given the fact that Indonesia is a developing country will give limitation to the application of generally accepted approaches to those for developed countries. Related to this, we will refer to some studies that have dealt with those issues.

Chapter Four is the follow-up of Chapter Three and concerns the second purpose of the study in which the results of the economic adjustments using standard economic performance such as price stability, economic growth, balance of payments development, etc., and problem areas and policy issues in the future are surveyed and observed. The observations will give insight and practical implementation to the management of Indonesia's macroeconomic policy which has strong and mutual relationship with the conduct of budget policy as the first aim of the study.

Chapter Five discusses general concepts of budget deficit, Indonesia's budget system, some proposed concepts of fiscal deficit on Indonesia, and concept of budget deficit which is chosen in this study related to the first aim of the study.

Chapter Six deals with the empirical model and estimation process that are used in the study.

Chapter Seven discusses the empirical results and policy implications, in which the discussion also covers tests on the stationarity of the variables, long-run equilibrium of the trade balance, error correction model, and an observation of the application of Mundell-Fleming Model in Indonesia.

Chapter Eight summarises the results of the study, some suggestions to be proposed and the remaining issues need to be addressed.

## FOOTNOTES AND REFERENCES TO CHAPTER I

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[1] See for example Jeffrey D. Sachs "Developing Country Debt and the World Economy", *National Bureau of Economic Research*, 1989, The University of Chicago Press, p.4, in which it is cited that Korea and Indonesia are the only two countries did not undergo debt rescheduling during period 1975-86 compared to other countries such as Argentina, Bolivia, Brazil, Mexico, Philippines and Turkey. Gillis, Perkins, Roemer, and Snodgrass in *Economics of Development*, 4th Edition, 1996, W.W. Norton & Company praise Indonesia for having been able to avoid the Dutch Disease in contrast to Nigeria (p.479) and for the success story of stabilization program (p.129). Malcolm Gillis and David Dapice on Indonesia as saying "Economic performance in Indonesia during the past two decades has been widely regarded as successful. External adjustment policies played a significant role in the success. Some lessons may be learned from Indonesia's adjustment process" in "*The Open Economy: Tools for Policy Makers in Developing Countries*" edited by Rudiger Dornbusch and F. Leslie C. H. Helmers, EDI Series in Economic Development, Oxford University Press, 2nd Edition, 1989, p.307. Hall Hill in "*The Indonesian Economy since 1966*, South East Asia Emerging Giant", Cambridge University Press, 1996, by putting Indonesia in comparative perspective with neighboring ASEAN such as Philippines and Thailand (sharing proximity and some ethnic/cultural similarities) or China and India, large Asian states with percapita income not too far below that of Indonesia or some of the large OPEC nations such as Mexico and Nigeria, has praised Indonesia for performing well by most comparative indicators : economic and social (p.7). Sadiq Ahmed and Ajay Chibber in the *"How Can Indonesia Maintain Creditworthiness and Noninflationary Growth?*, The World Bank Working Papers, October 1989 gave comment on the cover page as "Indonesia-unique among middle-income oil-producing countries-adjusted rapidly to oil price shocks, and it begins a new decade with good prospects for noninflationary growth and better creditworthiness. What is the country's secret?" In the Document of International Monetary Funds from the Acting Secretary to Members of the Executive Board on the Subject: Indonesia - Staff Report for the 1995, Article IV, Consultation, June 23, 1995, it is mentioned "Indonesia shares with its ASEAN regional partners--especially Malaysia, Singapore, and Thailand--a record over the last few decades of impressive economic management, which has been characterized by high level of savings and investment, strong growth in manufacturing and exports, and a substantial build up in international reserves". Lazaros E . Molho described it as: "Indonesia stands out among countries with a similar burden of external debt for its exemplary debt-servicing record. A successful mix prudent macroeconomic policies and market-oriented reforms is undoubtedly a key factor behind this achievement" in "*Fiscal Adjustment in Oil-Exporting Country: The Case of Indonesia*", IMF Paper on Policy Analysis And Assessment, International Monetary Fund, South East Asia Department, 1994, pp 18. Finally Sarath Rajapatirana, Director, "Macroeconomic Policies, Crisis, and Growth in the Long Run" Research Project Chief, Trade, Finance, and Private Sector Development Technical Department Latin America and the Caribbean Region in his foreword of *"Macroeconomic Policies, Crises, and Long - Term Growth in Indonesia, 1965-90*" by Wing Thye Woo, Bruce Glassburner and Anwar Nasution, World Bank, Comparative Macroeconomic Studies, 1994 mentions "The Indonesian economy did very well in the 1965-90 period. Per capita income growth averaged 4.3 percent a year despite four economic crisis : hyper inflation in 1965 and 1966, the 1975 default by Pertamina (the state oil company), the serious weakening of Indonesia's non-energy tradable sector by "Dutch disease" between 1973 and 1978, and the post-1982 fall in the price

of oil, one of Indonesia's chief exports. All four crises were handled competently and had no adverse consequence for long-term growth.....Indonesia's experience challenges two conventional views about macroeconomic management. It challenges the claim that " announcement effects" make price stabilization easier when a credible program is undertaken by the government.....The Indonesian case also suggests that the customary recommendations about the optimal sequencing of economic reforms may be flawed. Indonesia reversed the recommended sequence but still reaped benefits from the realistic exchange rate that had to be adopted in light of its open capital account".

In contrast to all cited above, in his book Economic Development (New York: W. W. Norton, 1968), Benjamin Higgins labeled Indonesia as: "the number one failure among the major underdeveloped countries".

# CHAPTER II:
# REVIEW OF THE LITERATURES

## 2.1. Introduction

The purpose of this chapter is to highlight those part of the literature on the relationship between fiscal deficit and balance of trade, and to a large extent of the theory of balance of payment from which we may draw macroeconomic policy theory of the open economy suitable for Indonesia.

There are at least four theoretical approaches to the balance of payments determination namely the elasticity, the absorption, the monetary and the fiscal approach. There is also policy approach which was developed by Mundell and Fleming. Though monetary approach is usually the last in the series of approaches to the balance of payments, we place Mundell and Fleming approach as the last in this series of discussions, simply because is regarded as a policy approach rather than a theoretical one. Below are the reviews of those approaches.

In Section 2.2. we discuss the elasticity approach to the balance of payments. The elasticity approach dominated the economic analysis balance of payments for quite a long time after the collapse of the international gold standard in 1931. This approach centered on the effect of exchange-rate changes and the price elasticities of demand for exports and imports in international trade. The next section is the absorption approach. This approach criticises the elasticity approach for being partial-equilibrium in the sense that it considers only the effect of exchange-rate variations in the market for exports and imports, and everything else is held

constant, so that the position of the demand curves for exports and imports themselves are held constant. It argued that movements in the balance of payments can only be understood in relation to how expenditure is affected relative to output. The monetary approach which is the last in this series of approaches will be discussed in Section 2.4. and is essentially an extension of the absorption approach, stressing balance of payments deficits as a monetary phenomenon to be corrected by monetary means.

In contrast to the monetary approach, the fiscal approach which is taken up in Section 2. 5. is rooted in the writing of Nicholas Kaldor (1971, 1975), and suggests that when analysing the current account of the balance of payments one should focus on the government budget deficit and the private sector demand for financial assets, rather than directly on the determinants of exports and imports. Lastly, the Mundell-Fleming approach tries to reconcile the conflict between internal and external balance by using a policy mix, that is fiscal policy to achieve the former and monetary policy to achieve the latter goal.

## 2.2. The Elasticity Approach

This approach is the first in a historical series of approaches to the balance of payments adjustment mechanism. The elasticity approach basically provides an analysis of what happens to the current account balance when the country devalues its currency. This approach makes some simplifying assumptions by focusing on demand conditions and by assuming that the supply elasticities for domestic export goods and foreign import goods are perfectly elastic, so that changes in demand volumes have no effect on prices. In effect, these assumptions mean that domestic

and foreign prices are fixed so that changes in relative prices are caused solely by changes in the nominal exchange rate.

The central message of the elasticity approach is that there are two possible and opposing direct effects of a devaluation on the current account balance, one of which works to reduce a deficit, whilst the other actually contributes to making the deficit worse as discussed below.

From a position of equilibrium in the current account, a devaluation will improve the current account, only if the sum of the foreign elasticity of demand for exports (percentage change in exports over the percentage change in price represented by the percentage change in the exchange rate) and the home elasticity of demand for imports (percentage change in imports over the percentage change in price represented by the percentage change in the exchange rate) is greater than unity. If the sum of these two elasticities is less than unity then a devaluation will lead to a deterioration of the current account (Marshall - Lerner condition).

There are two effects in play once a currency is devalued namely the price effect and volume effect [1)]. The *price* effect works when exports become cheaper measured in foreign currency and imports become more expensive measured in the home currency. If after the devaluation, the value of exports is less than the value of imports, then devaluation has an effect of worsening the current account of the country. The *volume* effect happens when exports become cheaper, encouraging an increased volume of exports and that imports become more expensive, leading to a decreased volume of imports. The volume effect will then contribute to improving the current account.

The net effect of these two forces depends upon whether the price or volume effect is more dominant. There could be three possible scenarios

following a devaluation. If the increased exports and decreased imports do not result in a net increase in receipts, the balance of trade is adversely affected. The second case is if the increased export volumes and decreased volume of imports exactly match the decreased earnings per unit of exports and increased expenditure per unit of imports so that the current balance is unchanged. The last case is whenever the increased volume of export sales and decreased volume of imports are enough to outweigh the price effects, then the current balance improves following a devaluation.

A great deal of time and effort has been expended by economists in attempts to measure the supply and demand elasticities for exports and imports. Economists divided up into two camps popularly known as 'elasticity optimists' who believed that the sum of these two elasticities tended to exceed unity (devaluation might reduce the excess demand for foreign exchange) and 'elasticity pessimists' or *Structuralists* who believed that these elasticities tended to less than unity. The Structuralists argued that a devaluation may work better for industrialised countries than for developing countries. Many developing countries are heavily dependent upon imports so that their price elasticity of demand for imports was likely to be very low. While for industrialised countries that had to face competitive export markets the price elasticity of demand for their exports may be quite elastic. The implication of the Marshall - Lerner condition was that devaluation may be a cure mainly for developed countries' balance of payments deficits but not for others[2)].

A general consensus accepted by most economists is that elasticities are lower in the short run than in the long run, in which case the Marshall-Lerner condition may not hold in the short run but may hold in the medium to long run. The possibilities that in the short run the Marshall-Lerner

condition may not be fulfilled although it generally holds over the longer run, leads to the phenomenon of what is popularly known as the *J*- curve effect, because diagramatically the response of the trade balance looks like a J[3].

## 2.3. The Absorption Approach

Elasticities analysis has been widely criticised because it ignored the income-expenditure effects of devaluation. The elasticity approach is based on assumption that changes in export and import volumes brought about by a devaluation will have no implication on national income. Absorption approach launched by Sidney Alexander and further elaborated by Harry G. Johnson[4] incorporates the income effect of a devaluation. However, like elasticity approach, absorption approach concentrates exclusively on the current account (without touching capital inflow or outflow). One of the major defects of the elasticity approach is that it is based upon the assumption that all other things are equal. However, changes in export and import volumes will have implications for national income and consequently income effects need to be incorporated in a more comprehensive analysis of the effects of a devaluation. According to the absorption approach, current account imbalance can be viewed as the difference between domestic output and domestic spending (absorption). The absorption approach does not reject the importance of supply and demand elasticities but its focus is on the macro level. Using the income identity, it defines income (Y) as the sum of domestic absorption (A = C + I + G) and net export, X - M (or current account; CA). Taking the equation for national income :

$$Y = C + I + G + X - M \qquad (1)$$

and defining domestic absorption as $A = C + I + G$, the above equation can be rearranged as follows :

$$CA = X - M = Y - A \qquad (2)$$

The last equation says that the current account balance represents the difference between domestic output and domestic absorption. A current account surplus means that domestic output exceeds domestic spending, while a current account deficit means that domestic output is less than domestic spending. The effect of devaluation on the current account balance will depend upon how it affects national income relative to how it affects domestic absorption. If a devaluation raises domestic income relative to domestic spending the current account improves. To improve the balance of payments, devaluation should either increase the country's total output or must reduce its domestic absorption if the country is already at full employment. If not, devaluation will simply cause inflation in the case of a full employment economy. To ensure the positive effects of devaluation or "expenditure switching" policy, it must be supplemented with an " expenditure reducing" policy such as tighter fiscal and monetary policies.

Initially, it was believed that the absorption approach was an alternative to the elasticities approach, the elasticities approach concentrating on price effects while the absorption approach concentrated on income effects. In fact, economists show that the two models are not substitutes; rather they are complementary, as shown by Tsiang (1961) and Alexander (1959)[5]. Consider the effects of a devaluation on income.

Exports will increase more than imports, so raising income only if the Marshall - Lerner elasticities condition is fulfilled. If the Marshall - Lerner condition is not fulfilled, then exports will rise by less than imports, implying that income will fall. Hence, the Marshall - Lerner is relevant to the absorption approach.

## 2.4. The Monetary Approach

The monetary approach to the balance of payments, as developed by the IMF and the University of Chicago at the end of the 1950s, stresses the essentially monetary nature of balance of payment imbalances. Its essence is to put at the forefront of analysis the monetary rather than the relative price aspects of international adjustment as Harry G. Johnson put it [6]:

> Accordingly, surpluses in the trade account and the capital account respectively represent excess flow supplies of goods and of securities, and a surplus in the money account reflects an excess domestic flow demand for money. Consequently, in analysing the money account, or more familiarly the rate of increase or decrease in the country's international reserves, the monetary approach focuses on the determinants of the excess domestic flows demand for or supply of money".

The historical origin of monetary approach to the balance of payments (Mabop) can be traced back to the price-specie flow mechanism which sees purchasing power parity as determining either domestic price level under a fixed exchange rate system, or the exchange rate via adjustment in domestic money supply under a floating exchange rate regime. Monetary processes, therefore, can cure the balance of payments disequilibrium. Since it is particularly interested in the equilibrium condition of the money market, the balance of payments approach is defined as the financing or accommodating transaction or the official

settlement balance that constitutes the monetary account. So unlike elasticities and absorption analyses, which represent improvements in, or modifications to, the analysis of the current account, the Mabop is an alternative approach that scraps separate analysis of the components of the current account and capital accounts and replaces it by a theory of the *overall* balance of payments[7].

The fundamental basis of the monetary approach is that the balance of payments is essentially a monetary phenomenon. Not only is the balance of payments a measurement of monetary flows but such flows can only be explained by a disequilibrium in the stock, demand for and supply of money. The fundamental message is that disequilibrium in the balance of payments reflects disequilibrium in the money market. Consequently, balance of payments analysis needs to focus on both the supply of and the demand for money.

There are three key assumptions underlying the monetary model. Those are a stable money demand function, full employment condition (vertical aggregate supply schedule) and purchasing power parity (PPP) concept.

*The stable money demand* function. The keystone of the Mabop is that there is a stable demand for money function which is made up of only a few variables. The monetarists use the quantity theory of money as the basis of the money demand function. The demand for money function is written as :

$$Md = kPy \qquad \text{where } k>0 \qquad (3)$$

where Md is the demand for nominal money balance, P is the domestic price level, y is real domestic income, and $k$ is a parameter that measures

the sensitivity of money demand to changes in nominal income. The reciprocal of *k* is the "velocity" of money.

The demand for money is positive function of the domestic price level. This is because the demand for money is a demand for real money balances. A rise in the domestic price level will reduce real money balances (Md/P) and accordingly lead to an equiproportionate increase in the demand for money. The demand for money is positively related to real domestic income; a rise in real income will *ceteris paribus* lead to an increase in the transactions demand for money. The money demand function forms the basis of the aggregate demand schedule, where price level is inversely related to real income and interest rate has no influence on demand for money.

*Full employment (vertical aggregate supply)*. The simple monetary model assumes that the labour market is sufficiently flexible and that the economy is continuously at the full employment level of output. In other words, wages are constantly at the level that equates the supply and demand for labour. For example, a rise in the domestic price level does not lead to an increase in domestic output because wages adjust immediately to the higher price level so that there is no advantage for domestic producers to take on more labour. This means that the aggregate supply is vertical at the full employment level of output. An improvement in productivity due to technological progress may shift the aggregate supply curve[8)].

*Purchasing power parity (PPP)*. The final assumption that underpins the monetary model is the assumption of purchasing power parity. In its simplified version the theory says that the exchange rate adjusts so as to keep the following equation in equilibrium:

$$P = EP^* \qquad (4)$$

where E is the exchange rate defined as domestic currency per unit of foreign currency so that a rise is a depreciation while a fall is an appreciation of the domestic currency. P is the domestic price level in the domestic currency and P* is the foreign price in the foreign currency. If the PPP relationship holds, the long run movement of the nominal exchange rate will be equal to the difference between the monetary growth rates in the domestic and foreign economies.

The three assumptions with the use of some accounting identities developed a theory of the balance of payments.

$$X - M + i * F + K = \Delta R = \Delta RM - \Delta D \qquad (5)$$

Reading from the left to the right of the equation above, we can see that exports, X, minus imports, M, plus net factor income from foreign investment, $i$*F, gives the current account surplus. When the surplus on capital account, K, is added the result is the balance of payment surplus, $\Delta R$. Addition to foreign exchange reserves, $\Delta R$, and addition to domestic assets, $\Delta D$, form the base, $\Delta RM$, for monetary expansion by the banking system.

The domestic money supply (Ms) in the economy is made up of the following components :

$$Ms = m*RM=m\,(R+D) \qquad (6)$$

where Ms is domestic money supply, m is conventional money multiplier and RM is reserve money (high powered money : monetary liabilities of monetary authorities). The reserve money (RM) can come into circulation in one of two ways :

(i). The authorities may conduct an open market operation (OMO), which is a central bank purchase of treasury bonds held by private agents. This increases the central bank's monetary liabilities but increases its assets of domestic bond holdings which is the domestic component of the monetary base.

(ii). The authorities may conduct a foreign exchange operation which is a purchase of foreign currency assets (money or foreign treasury bonds) held by private agents by the central bank. This again increases the central bank's liabilities but increases its assets of foreign currency and foreign bonds.

By assuming m=1 (which could happen under a non-fractional banking reserve system), then RM is equal to Ms. From the equation above by taking the first differences we can derive :

$$\Delta R = \Delta Ms - \Delta D \qquad (7)$$

where clearly $\Delta R$ is the change in foreign reserves, $\Delta D$ is the change in the domestic component of the money supply or domestic credit expansion and $\Delta Ms$ is the change in the money stock which in the Mabop literature is the flow demand for money.

Equation (7) tells us in a simple way given $\Delta R$ (balance of payments target) and $\Delta Ms$ (target of money supply) how much domestic credit, $\Delta D$, can be extended consistent with $\Delta R$ and expected growth in money demand. Thus to control a balance of payments deficit domestic credit expansion has to be controlled relative to the flow demand for money.

Policy implications of the Mabop, under a fixed exchange rate regime, are summarised as follows :

1. *Money supply is endogeneously determined.* The monetary authority of a country cannot determine the country's real money supply. In other words, the real stock of money supply is endogenous. This was Mundell-Fleming's conclusion in the economic policy approach too, as we will see in section 2.7. All the monetary authority can do is to influence the components of the monetary base between domestic credit and foreign exchange reserve. The monetary authority controls the volume of domestic credit and through that it can affect the balance of payments and the foreign exchange reserve of the country. If the monetary authority lets domestic credit expand beyond the public demand for money, the public will get rid of the excess balances by increasing their expenditure on goods, services and securities. If domestic supplies are unable to meet public demand for them, (full employment, for example), people simply import goods and securities from abroad to respond to the expansion in the volume of domestic credit which lead to country's foreign reserves losses. On the other hand, if domestic credit is restricted to less than the public demand for it, people will export goods and securities abroad, thereby importing money to satisfy their excess demand. In this case, the foreign exchange reserves of the country grow.

**2.** *Balance of payments deficits are temporary and self correcting phenomena.* The Mabop regards the balance of payments deficits resulting from the expansion in the money stock to be merely a temporary and self correcting phenomenon. An expansion of the money supply causes a temporary excess of money, lowers interest rates, increases spending and leads to a current and capital account deficit which to maintain the fixed exchange rate, necessitates intervention in the foreign exchange market that eventually eliminates the excess supply of the currency. A monetary contraction, by raising interest rates and reducing spending, reduces

income and therefore imports. This result could also be achieved by tight fiscal policy, and so there is nothing especially monetary about this interpretation of remedies for external balance[9].

**3**. *Balance of payments disequilibrium is monetary in essence.* Since the balance of payments disequilibrium is monetary in essence, it can only be cured by the use of domestic monetary policy. The authority may be able to support an external deficit without self-correcting monetary policy only if it is ready to sacrifice its foreign exchange reserve and is able to borrow from abroad to fill the deficits. This situation cannot continue indefinitely. On the other hand, the monetary authority may be able to sterilise its holding of foreign reserves at the cost of a reduction in the rate of domestic credit creation. Such policies are generally viewed as unnecessary and are only effective in the short run since no small country can afford to borrow or reduce the rate of its domestic credit expansion for a long period of time.

**4**. *Devaluation will have a transitory beneficial effect on the balance of payment*. Devaluation is a once and for all increase in domestic value of foreign currencies. Starting from external balance, the argument is that in the short run a devaluation improves the competitive position *vis-à-vis* the foreign sector. This causes a surplus in the trade balance and therefore an increase in foreign reserves. This increase also makes the money supply grow (via equation 7). Assuming this increase is not sterilised and as people will strive to maintain their money balances, excess demand for goods and services will drive up prices and imports until the surplus on the current account is eliminated.

The effect may also work through another channel, that is when sterilisation takes place. As prices increase, the demand for nominal money also increases to maintain the certain previous level of real stock demand,

while the stock of real money supply declines. If stock demand is not satisfied from domestic sources by domestic credit expansion, people restore the money market disequilibrium by importing money from abroad (borrowing from abroad/capital inflow or selling foreign bonds). This tends to cause domestic currency to appreciate. To prevent domestic currency from appreciating, the monetary authority has to sell domestic currency to buy up the foreign assets the public now hold in order to stabilise the exchange rate at its depreciated level. Thus, the country gains foreign exchange reserves. The adjustment process continues until the money market equilibrium is restored. In other words, the effect of devaluation is viewed as transitory and incapable of bringing about a lasting change in the balance of payments.

Because fixed exchange rates make it impossible to control the money supply, it is not difficult to see why monetarists were the vanguard of those who argued for abandonment of fixed exchange rates[10].

## 2.5. The Fiscal Approach

The fiscal approach is also known as the New Cambridge School's balance of payments theory. The views of the Cambridge School are related to the writings of Kaldor (1955, 1966, 1971, 1975) and his followers (e.g. Wood 1975). Their view is that when analysing the current account of the balance of payments one should focus on the government budget deficit and the private sector demand for financial assets, rather than directly on the determinants of exports and imports[11]. By assuming that the private sector is in balance, then a deficit in the budget would lead to a balance of payments deficit. This was the basis of the so-called New

Cambridge theory which ascribed the UK's balance of payments deficits in the 1960s and early 1970s to government budget deficit, basing the theory on the empirical observation that the private sector of the economy stays roughly in balance. The theory did not last long, as it was confounded by contrary empirical evidence, and the theory died a quick death[12].

In contrast with the absorption approach, the fiscal approach focuses on public sector saving as the only relevant determinant of the current account of the balance of payments. In common with the monetary approach, the fiscal approach extends the balance of payments theories of the 1960s to consider stock demand for assets as well as expenditure decisions. The demand for net stock of financial assets is assumed to be a "small and stable" proportion of the disposable income of the private sector. Interest rates are fixed and investment demand is totally interest-inelastic. Hence, the fiscal approach (which ignores net factor income and transfer from abroad) models the current account of the balance of payments, X-M, as determined by the fiscal balance, T-G, and private balance, S-I, as follows[13].

$$X-M = (S-I) + (T-G)$$

These two approaches, the fiscal and monetary approach under certain conditions can be considered mirror images of each other : the monetary approach concentrates on the official settlement accounts and lumps everything else into "items above the line". The fiscal approach concentrates on the current account and lumps everything else into "items below the line"[14].

In equilibrium conditions the commodity and money markets can be written as follow:

| | Foreign sector | | Gov't Sector | | Private Sector |
|---|---|---|---|---|---|
| Fiscal approach | (X-M) | = | (T-G) | + | (S-I) |
| Monetary approach | ΔR | = | -ΔDC | + | ΔMs |

With capital movements equal to zero, the sum of each column equals zero, showing the perfect similarity of the theoretical form of the fiscal and monetary approaches.

But the fiscal approach and the monetary approach have different views as regards to the labour market and price and output flexibility. Whereas most versions of the *Mabop* assume continuous *full employment*, the *fiscal* approach considers output and employment to be *flexible*. Therefore, fiscal expansion according to the fiscal approach will bring results;

- The fiscal deficit will be less than the initial fiscal expansion, because it raises output brought about by raising tax revenue (owing to the assumption of less than full employment);
- No crowding out of the private sector (based on an assumption of a perfect, open financial market which implies domestic interest rates are equal to interest rate abroad, $i = i^*$, and an assumption of a marginal private propensity to spend for both consumption and investment to be unity).

Accordingly, the policy recommendations of the two approaches for achieving equilibrium of the external balance are different. Below are the differences:

The *fiscal* approach suggested that import restrictions be used for offsetting government expenditure and that they should continue to play a role in supporting domestic demand. The argument was that increasing tariffs would have the same results as an autonomous reduction in the import propensity of the UK economy[15].

The *monetary* approach contends that the burden of adjustment should fall on domestic credit creation and on the government deficit, which is considered the main cause of increases in domestic credit.

The differences in the policy recommendation depend on the sensitivity of exports to changes in domestic prices and of prices to change in demand.

In the *monetary* approach :
- the price sensitivity of exports tends toward *infinity* because of the assumption of a small, open economy for which purchasing power parity holds and demand for exports is infinite.
- the parameter that measures the price effect of changes in demand in the price equation is equal to *infinity* because the labour supply curve is vertical.

In the *fiscal* approach :
- the price sensitivity of exports has a *positive but finite value.*
- the price effect of changes in demand is equal to *zero,* because any change in demand will change the output, rather than the price.

Both approaches assume that the sensitivity of prices to a change in the exchange rate is equal to unity, because of the no money illusion.

The fiscal approach framework implies that the balance of payments is equal to the net domestic financing of the government and private sector, and throws light on the fact that the domestically financed government deficit is the proper macro-economic fiscal target that can be used to influence the current account. The definitions in the equation above are important because they emphasise the need for consistency between current account, budget deficit and net private savings. Specifically, it stresses the fact that the current account deficit may depend on two sets of policies:

(i) those that influence the net private savings

(ii) those that influence the budget deficits.

However, this two domestic sector financial balances that correspond to the current account deficit does not imply that the two balances are independent of each other in a policy sense. Changes in policy instruments (for example, tax rate, subsidies, etc.) that change the fiscal deficit may change the private sector deficit or surplus. Similarly, policies that change the private sector balance (for example, interest rate, credit policy, etc.) may also change the fiscal deficit.

Related to this issue, at a global level it is quite interesting that the argument might arise among developed countries regarding their balance of payments problems that particularly afflicting the USA:

"The Japanese net export surplus is matched by an excess of private savings over investment. The USA complained that its own external deficit was the result of what it perceived as an exogenous Japanese external surplus. The USA laid the blame on excessive saving (low total spending) and insufficient investment spending in Japan. The Japanese countered that their external surplus and savings were largely an endogenous response to the US budget and

external deficit. For the EC (European Communities) as a whole, the excess of savings over investment was mirrored in the averaged budget deficit. Within the EC the situation varied considerably, with some countries running large deficits and others large surpluses. As a whole, the Europeans blame America's twin deficits for pushing interest up and discouraging investment world-wide, siding on this issue with Japan. They also complained that weak demand in Japan had depressed world incomes, thus siding with the USA. Both Japan and the USA thought the Europeans should put their house in order and cut their own budget deficits. There is an element of truth in each of these assertions : what separates them out is the assumptions about what is exogenous - the US and EC budget deficits, or weak Japanese demand. Using macroeconomics correctly requires a lot more information" [16].

## 2.6. Barro- Ricardian Equivalence

Discussing the fiscal approach to the balance of payments without referring to Barro-Ricardian equivalence is not complete. Economists generally agree that an increase in the budget deficit caused by a temporary increase in government purchase or expenditure will reduce national savings, which will in turn increase current account deficit (through the crowding out effect). But as regards that whether an increase in the budget deficit caused by a tax cut reduces national savings, investment or current account is controversial. The last issue is known as Barro-Ricardian equivalence issue.

The theory proposed that under certain circumstances a change in the path of taxes over time - lower taxes in the present, and higher taxes in the future, say - does not affect private expenditure and therefore does not affect national savings, investment, or current account.

In a very simple way the theory states that at the aggregate level, government deficit (due to lower taxes), financed by borrowing will increase the demand for loanable loans, shifting the demand curve (Figure below) to D1. Households, recognising that the increased government

deficit will bring increased future taxes to pay the additional interest charges, cut their consumption and increase their saving (households try to maintain their permanent income). The supply curve of loans will shift to the right to S1. The equilibrium quantity of loans increases in such a way that the interest rate is left constant and there is no crowding out. Some economists argue that Barro - Ricardian equivalence breaks down because people only take into account future tax liabilities that will be borne by themselves and not by their children and their grandchildren. Proponents of the Barro - Ricardian equivalence proposition argue that it makes no difference whether future tax liabilities are going to be borne by those currently alive, or by their descendants. If the taxes are going to be borne by their children and their grandchildren, the current generation takes into account those future taxes and adjusts its own consumption so that it can make bequests on a large enough scale to enable those taxes to be paid.

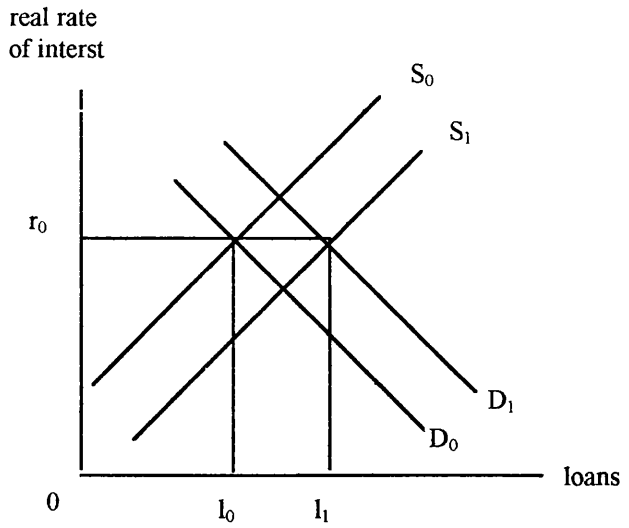


Figure 2.1. : Barro-Ricardian Equivalence

Most economists are convinced that the proposition cannot be empirically relevant. The issue of this Ricardian equivalence took on an extremely practical note when in the early 1980s, President Reagan

proposed cutting taxes in the face of an already - large deficit, which is followed by private savings declined sharply. This is one piece of evidence against the proposition[17].

## 2.7. The Mundell-Fleming Approach

The James Fleming - Robert Mundell approach is sometimes called a policy approach, as this approach deals with which policy should be taken when a country having an assignment problem. That is to assign correct macroeconomic policies so as not to destabilise the economy. Mundell argued that the proper assignment is of monetary (interest rate policy) policy to external balance and fiscal policy to internal balance[18]. This is because interest rates have a relatively greater effect on the balance of payments - through international capital flows - than on the domestic economy, while the reverse is true of fiscal policy.

The Mundell-Fleming policy approach deals with a small open economy. A small open economy is defined as one that cannot influence interest rates in international financial markets and at the same time is also a price taker in the world's goods market. Like the income - absorption approach, this policy approach directly addresses the macro policy problems and ignores changes in terms of trade by simply assuming that the Marshall - Lerner condition is always satisfied. However, the policy approach allows domestic monetary authorities to use monetary policy to affect short run capital flows in and out of the country. Under a fixed exchange rate regime, the balance of payments need not be zero, and as a result the central bank's holding foreign exchange reserve changes. The major contribution was to incorporate international capital movements into formal macroeconomics models based on the Keynesian IS-LM

framework. Their studies led to some dramatic implications concerning the effectiveness of fiscal and monetary policy for the attainment of internal and external balance.

Under fixed exchange rates and perfect capital mobility, the monetary authorities are not able to choose both the money supply and the exchange rate since households may convert their domestic money into foreign assets as they see fit. In other words, monetary policy is endogenous or a country cannot pursue an independent monetary policy. For example, if a country wishes to raise interest rates by implementing tight monetary policy, immediately portfolio holders worldwide shift their wealth to take advantage of the new rate. As a result of the huge capital inflow the balance of payments shows a gigantic surplus; foreigners try to buy domestic assets, tending to cause the exchange rate to appreciate, and forcing the central bank to intervene to hold the exchange rate constant. It buys foreign money, in exchange for domestic money. This intervention causes the domestic money stock to increase. As a result the initial monetary contraction is reversed. The process comes to an end when home interest rates have been pushed back down to the initial level.

On the contrary, fiscal expansion under fixed exchange rates with perfect capital mobility is extremely effective. With the money supply initially unchanged, a fiscal expansion moves the IS curve up and to the right (I'S'; Figure 2.2 below), tending to increase both the interest rate (to i') and the level of output (move from $Y_0$ to $Y_1$). The higher interest rate sets off a capital inflow that would lead the exchange rate to appreciate. To maintain the exchange rate, the central bank has to expand the money supply, thus increasing income further (to $Y_2$). Equilibrium is restored when the money supply has increased enough to drive the interest rate back to its original level, $i=i_f$ to L'M' . In this case with endogenous money

supply, the interest rate is effectively fixed, and the simple Keynesian multiplier applies for a fiscal expansion.

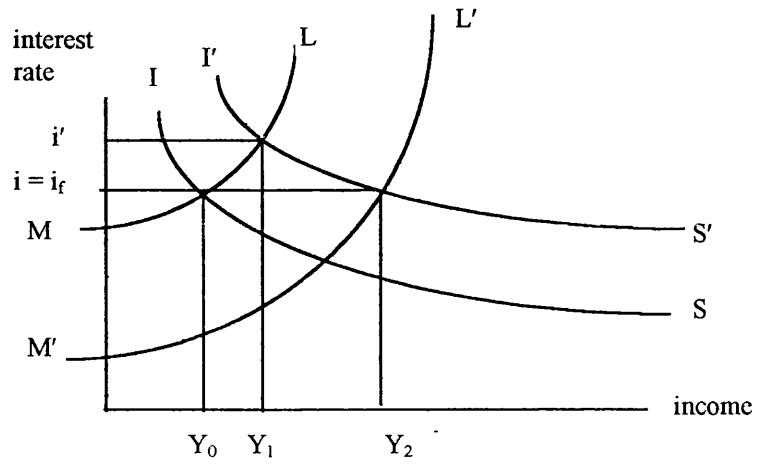


Figure 2.2: Short-run effect of fiscal policy under fixed exchange rate

The description above is a short run analysis. In the long run nothing changes. Why is it so? There are three observations that characterise long run circumstances[19].

*First*, the government budget constraint implies that there can be no permanent fiscal expansion: eventually the aggregate demand curve must return approximately to its initial position AD (Figure 2.3.).

*Second*, the economy will return to the long-run aggregate supply curve (LAS), so there can be no permanent real effect of a fiscal expansion.

*Third*, and most importantly, inflation cannot differ forever, not even for very long - from foreign inflation if the exchange rate is to remain fixed. The economy must come back to its long run purchasing power parity line (PPP). Finally, in the long run the economy must return to point A.

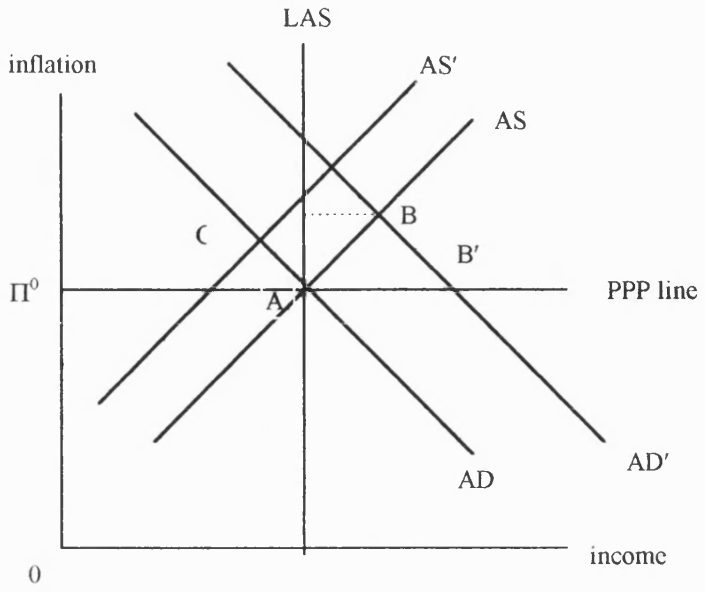


Figure 2.3: Long run effect of fiscal policy under fixed exchange rate.

Under flexible exchange rates, the inflation rate is determined by the rate of growth of the nominal money supply. It is only under flexible exchange rate that the monetary authorities are free to set the money growth rates. Some independence can be achieved under fixed exchange rates by the use of capital control. Under flexible exchange rates, fiscal policy is ineffective.

## 2.8. The impacts of budget deficit.

We close the discussion on the theoretical approaches to the balance of payments by observing the impact of budget deficit on the balance of payments or current account. The discussion is then followed by trying to find the appropriate approach for Indonesia.

There has been a long debate regarding the relationship between budget deficit and current account or balance of payments. Some argue that there is a relationship between the two and is often called "twin

deficit". Others, however, argue against any relationship. Economists generally agree that an increase in the budget deficit caused by a temporary increase in government purchase or expenditure will reduce national savings, which in turn increases the current account deficit (crowding out effect), but whether an increase in the budget deficit caused by a tax cut reduces national savings is unsettled. In analysing the impact of budget deficit on current account, Sadiq Ahmed asserts that it works through two channels[20]:

The *first* channel or direct effect is the impact of higher expenditure on imports financed directly by government borrowing.

The *second* channel, which works indirectly, is the impact of fiscal deficit on inflation, and leads to an appreciation in the real exchange rate. The latter in turn, leads to higher imports and lower exports and therefore a higher current account deficit. In assessing the impact of budget deficit on the current account, using econometric modelling, therefore, those two variables - nominal exchange rate and budget deficit as a share of GNP - are put separately in the equation. However, his statistical results do not seem convincing.

Related to the exchange rate policy, Rudiger Dornbusch maintain that exchange rate policy cannot be separated from fiscal policy. Inflationary financed budget deficit by money creation is then only a crawling - peg exchange rate system that is sustainable. Under such a system, the exchange rate is depreciated at a rate approximately equal to the difference between home and foreign inflation. But if a deficit is financed by debt, exchange rate policy becomes more difficult. Current borrowing finances a deficit in the external balance and allows a high real exchange rate. But when debt servicing starts, a real depreciation is

necessary to improve the external balance. Failure to move the exchange rate implies overvaluation and borrowing to finance exchange rate misalignment, and that means wasting resources[21].

The way an increase in budget deficit will affect current account is discussed by Ahsan H. Mansur. In his study, using simultaneous equations, he asserts that it will have two direct effects: aggregate real domestic demand will increase, and so will the nominal supply of money[22]. These direct effects will tend to increase the price level, real income, and real level of imports through different channels and feedback effects of other variables. Imports will be affected indirectly through three channels; (i) higher aggregate demand owing to an increase in real government expenditure; (ii) increased private sector absorption resulting from a higher income effect; (iii) the general price level rising relative to import prices, leading to an appreciation in the real exchange rate. This last in turn, leads to higher imports and lower exports and therefore a higher current account deficit.

As regards the effect of fiscal deficit on private investment, it is best understood by beginning with the familiar national income identity:

$$G - T = ( Sp - Ip ) + ( M - X )$$

At a very simple level, one can see that an increase in the fiscal deficit (G - T) without recourse to increased foreign borrowing (M - X ) must imply an increase in net private savings - an increase in private savings or a decline in private investment or a combination. How much of the adjustment is borne by private investment depends on how fiscal deficits affect the cost and availability of credit. It is, therefore, necessary

to distinguish between economies in which interest rates are uncontrolled versus those where credit is allocated by non - price mechanisms[23].

If interest rates are controlled and credit is allocated, there is a one to one negative relationship of fiscal deficit (higher credit to the public sector) and reduced credit to the private sector. If instead the government increases expenditure and resorts to monetary financing, this will in turn lead to a rise in the rate of inflation, a fall in real interest rate (since nominal rates are fixed), and if private savings fall[24], the availability of loanable funds to the private sector decline.

A further complication may arise in the form of a reduction in tax revenues due to higher inflation (Tanzi effect), leading to higher deficit financing requirement. In any case, irrespective of the financing option chosen a higher fiscal deficit with repressed financial markets will lead to a reduction in credit to the private sector.

In the case in which interest rates are market determined, the financing through domestic borrowing (commercial banks or non-bank private sector), assuming no access to foreign financing, will raise the interest rate, and so the interest payment on short-term debt held by the government. On the positive side, with a higher real interest rate, the same level of inflation tax revenue is available at a lower inflation rate as the demand for money also rises.

Recourse to monetary financing instead of domestic borrowing raises both the rate of inflation and the real interest rate. So irrespective of the method of financing a larger fiscal deficit with uncontrolled interest rates will always lead to higher real interest rates.

Another observation on budget deficit impact was proposed and summarised by Michael M. Hutchison as follows [25]:

Table 2.1
Financing channels of budget deficit: Advantages, Draw-backs, and Tensions Created

| Possible outcome | Foreign finance | Domestic Finance | | |
|---|---|---|---|---|
| | | Monetary finance | Captive Institutions | Market Finance |
| Advantages | Limited domestic interest rate effect (minimal displacement of domestic expenditure in short term) | Low budgetary cost of finance to government | Low budgetary cost of finance; provide priority finance to targeted industries. | Cost of debt finance reflects opportunity cost of funds. |
| Drawbacks | Increased external debt burden; other sectors could be "crowded out" from external finance | Inflation | Captive institutions forced to assume government debt at below market rates of interest. | High budgetary cost of funds |
| Likely tensions | Pressures for external adjustment; deterioration of international credit rating: reliance on external finance is likely to create the least amount of tension for domestic financial institutions and/or markets. | Financial "repression"- shrinkage of total financial sector; regulated sector shrinks relative to unregulated sector (for example, disintermediation); regulated sector attempts to circumvent interest rate controls by offering new instruments | Captive institutions placed at competitive disadvantage and may shrink relative to other financial institutions; political pressures placed on authorities to restore competitive balance | Yields on government debt instruments could rise above regulated deposit interest rate ceilings, causing disintermediation of funds from deposit taking institutions. |

*Source* : Michael M. Hutchison

Hutchison further stated that domestic financing by monetary financing will increase base money of the central bank, while non-monetary domestic financing may work through non market (captive) debt placement and market debt placement. As regards foreign financing, there are two sources, namely international institutions such as IMF, BIS, World Bank where financing in this category, often falls within the "concessionary" category and market finance through direct debt placement, foreign

commercial banks, etc. It is worth noticing the effect of foreign finance deficit financing, as might be relevant to Indonesia.

Turning to empirical ground, we can refer to the studies of Milne and Iqbal. Milne investigates the validity of the Cambridge New School fiscal approach to the balance of payments by testing the empirical relationship between the government deficit and the current account deficit. The findings support the fiscal approach to the balance of payments in slightly more than half the countries [26].

The same result is also found by Iqbal Mehdi Zaidi. In his study on the relationship between current account and budget deficit, he observes the scatter plots of *changes* (and cumulative changes) in the average fiscal balance/GNP against changes in the average current account balance/GNP of sample countries (20 non-oil developing countries), over the period 1968-72, 1974-77 and 1978-81. It was found that there is an indication of positive correlation between improvements in the current account balance and in the fiscal balance[27].

He further tested the relationship between government deficit and the current account deficit for the sample countries by using pooled cross-section time series data, for the period 1972-80 (yielded 180 observations for the variables). He came up with the result as follows:

$$(CA/GNP) = 0.66\ (FB/GNP)$$
$$(5.94)$$

$R^2$ adj.= 0.52 SEE = 0.038, where figures in parentheses are *t*-values.

The regression results also support the proposition of a positive relationship between the government deficit and the current account

deficit, but do not identify the direction of causation. The causal test between the current account and fiscal balance gives mixed results, each affecting the other as often as not. For two of the five countries, the results indicate feedback. For Greece, unidirectional causality exists from the budget deficit to the current account deficit, while for Thailand it is the reverse. The presence of bi-directional causality between fiscal and current account balance is not a surprising result. On the one hand higher export earnings will not only improve the current account, but also reduce the fiscal deficit (since tax on export earnings are a significant source of revenue in many developing countries). Furthermore, raised domestic income generated by exports will also lessen the need for an expansionary or countercyclical fiscal policy. In both of these accounts, an improvement in the current account balance could be expected to be reflected in an improvement in the fiscal balance.

On the other hand, governments running large budget deficits have borrowed heavily in international capital markets. Further, even when budget deficit is financed by money creation there is likely to be an adverse effect on the current account in countries with a fixed exchange rate, through disequillibrium in the money market and increased imports.

Another finding about the relationship between budget deficit and trade deficit for developed countries like the USA was proposed by Joachim Zietz and Donald K. Pemberton. Three main results were implied. First, it appears that the persistence of the US trade deficit of the 1980s can not be fully explained by macroeconomic fundamentals alone. There seems to be a role also for microeconomic explanations (they mention such as US quality of goods) [28]. Second, the budget deficit affects the trade deficit mainly through its impact on domestic absorption and income rather

than through higher interest rates and exchange rates. Third, sluggish foreign income growth has contributed to the US trade deficit, though it is not a dominant factor.

The last studies to be mentioned are those conducted by the World Bank concluding that fiscal adjustment and its consequences are complex. In some of the eight developing countries it is observed that the deficits result in high and variable inflation, in some others are in a debt crisis, and in the rest others the moderately high deficits seem not to generate any macro imbalance whatsoever. The ways of financing affect the correlations of fiscal deficits with macroeconomic performance[29].

The conclusion of the effect of budget deficit on current account can be summarised as follows :

The effects of budget deficits on the economy are the subject of debates among economists in both industrialised and developing countries. We can, at least, identify three distinctive schools of thought regarding the economic impact of budget deficits, namely, Neo-classical, Keynesian and Ricardian.

1. The neo-classical view regards consumers as farsighted individuals who are able to plan consumption over their own life cycles. Budget deficits are bound to raise total lifetime consumption by postponing taxes to the next generations. In a full employment economy, this increase in consumption implies a decrease in savings. Therefore, interest rates must rise to bring capital markets to balance. Hence, persistent deficits "crowd out" private capital accumulation.

2. The Keynesian view regards a significant fraction of the population as possessing a very high propensity to consume out of disposable income. Hence, a temporary tax reduction would have an immediate and quantitatively significant impact on aggregate demand. Assuming that initially the resources of the economy are underemployed, national income rises, thereby generating second round effects and the Keynesian multiplier. Savings and capital accumulation need not be adversely affected inasmuch as deficits are seen as stimulating both consumption and national income. Therefore, deficits occurring at the appropriate times have beneficial effects.
3. As has already been touched on the previous discussion on the effect of budget deficit on balance of payment, the Ricardian view suggests the presence of intergenerational linkages among successive generations, manifested in altruistically motivated transfers of resources. This would imply that consumption is a function of the total resources of an individual and all his descendants. Under this view, deficits merely shift the payment of taxes to future generations. Therefore, the total resources of the individual and all his descendants are in the aggregate unaffected. This being the case, the individuals would be indifferent to deficits.

Regarding the altruistic reasons, there are at least four schools of thought that can be mentioned. Robert Barro, among others, has suggested

that people leave bequests because they *care* about their children, and try to raise children's well-being by income transfers. While others, like Douglas Bernheim and Andrei Schleifer, argued that parents *have less altruistic* motives. A third school holds that bequest are largely *unintended.* Finally there are those who hold the view that much wealth accumulation is not for future consumption in any event, but rather simply for the *power* and *prestige* it brings[30].

The size of the deficit as well as its source of financing determine the impact of budgetary shortfalls on the economy. Direct borrowing from the Central Bank is regarded as inflationary, while borrowing from the bank and non-bank private sector may induce increases in interest rates or may crowd out private business. Foreign borrowings may have implications on the balance of payments.

Hence, it would appear that one can find support for any position taken on the effects of budget deficits be it detrimental, beneficial or irrelevant. The effects would of course depend on the particular circumstances faced by the individual countries.

## 2. 9. The relevant approach to Indonesia

We will now try to find the appropriate policy approach for Indonesia. From the point of view of policy making, based on the facts that Indonesia is a small open economy (its import prices are given and export prices for most products are determined at the world level), with a high degree of capital mobility (though not perfectly mobile), and *de facto* maintaining fixed (managed) real exchange rate system, then the Mundell-Fleming approach provides a very convenient and powerful reference[31].

However, in his previous study Sadiq Ahmed mistakenly asserted that the exchange rate in Indonesia was endogenously determined[32]. My objection (the writer's) to his opinion was then supported by him.

Using the standard IS-LM approach, only the balance of payments equilibrium line (BB) needs to be modified as capital mobility is not perfect. The BB schedule is upward sloping because higher levels of income cause a deterioration in the current account; this necessitates a reduced capital outflow/higher capital inflow requiring a higher interest rate. The BB curve slopes upwards reflecting imperfect capital mobility, instead of horizontal (Figure 2.4.). The imperfection of capital mobility is measured by off set (sterilisation) coefficient, a coefficient which shows the degree of Central Bank intervention in maintaining the money supply. Thus, a country suffering a deficit in balance of payments, that is selling foreign exchange and correspondingly reducing its money supply, may offset this reduction by open market operation to restore the money supply, or it can be seen as the magnitude of the decline of official foreign reserves due to an increase in domestic credit. For Indonesia a suggested value of this coefficient is 0.48 for the first quarter and 0.60 for the long run which is considered in the medium range[33].

The higher the coefficient the less perfect is the capital mobility, and the steeper is the BB curve. While the higher the degree of capital mobility then the flatter the BB schedule. This is because for a given increase in income which leads to a deterioration of the current account, the higher the degree of capital mobility, the smaller the required rise in the domestic interest rate to attract sufficient capital inflows to ensure overall equilibrium. It is also assumed that the BB schedule is flatter than the LM schedule, which means that capital flows are relatively sensitive to interest

rate change, while money demand is relatively inelastic with respect to the interest rate.

From the description above, fiscal policy which follows the Mundell-Fleming hypothesis, is more effective than monetary policy. An expansionary fiscal policy would shift the IS curve to the right, increase income and interest rates. The latter rise due to an increase in the demand for money and will invite capital inflow, increase in reserves and expansion of money supply. The rise in money supply will shift the LM curve to the right, and a new equilibrium will be reached at point b, associated with higher income. The associated worsening of current account balance is financed through capital flows. The strength of fiscal expansion will depend upon the degree of capital mobility. The lower the mobility, the steeper the BB curve, the less effective is the fiscal policy.

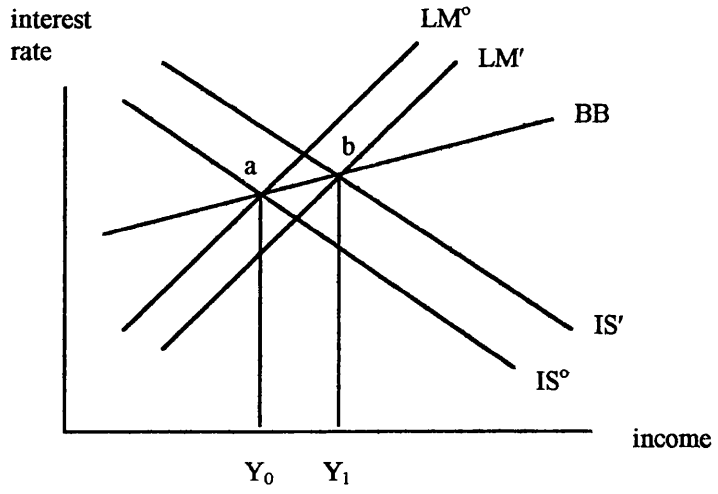


Figure 2.4. : Mundell-Fleming Approach under Indonesian conditions

To include domestic prices factor (assuming that world prices are constant) in considering the effect of those two policies, will only alter the effectiveness of fiscal policy but does not change the efficacy of monetary policy. In Indonesia, with abundant supply of labour, especially in the

informal sector, the supply curve in the aggregate demand and aggregate supply model is assumed to be relatively flat, and positive function of the price level (so to follow Keynesian aggregate supply), as shown by curve $AS_0$ on Figure 2.5.

The results of expansionary fiscal policy depend upon the flexibility of prices and wages. The more flexible the prices, the less the sustaining effects of fiscal policy on income. Conversely, the more sticky the prices, the more the sustaining effects of fiscal policy on income. This can be seen in Figure 2.5. In the top panel, as the IS curve shifts to the right (to $IS_1$), due to an expansionary fiscal policy, the intersection with $LM_0$ implies income level $Y_1$. Therefore, the aggregate demand curve shifts to the right by the distance $Y_1$-$Y_f$, or aggregate demand curve moves up to $AD'$. The intersection of $AD'$ with the short run aggregate supply curve ($AS_0$) is at point c, implying short-run equilibrium output of $Y_2$ at price level $p_2$. In the top panel it can be noted that higher price level reduces the real quantity of money, shifting the LM curve to LM1. In the long run (where the real wages adjust gradually), represented by aggregate supply curve $AS_1$, once all adjustments have been made, output returns to Yf, the price level rises to p3. The path will follow the classical model, that is only price will be affected.

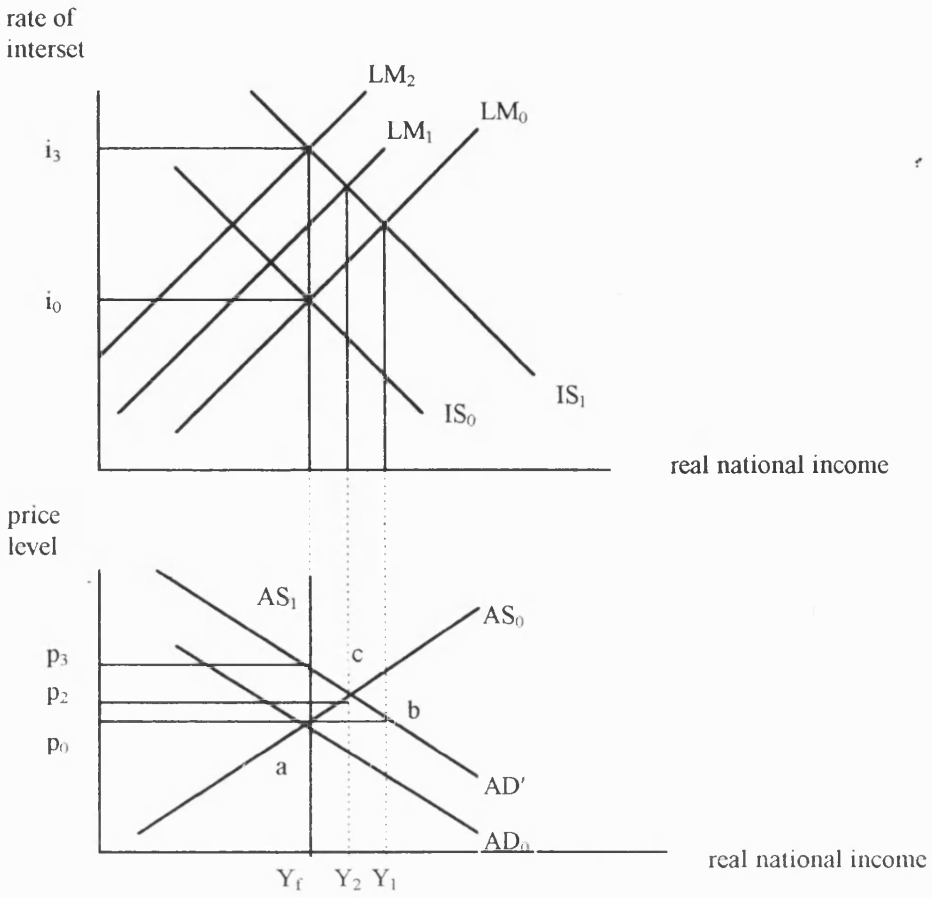


Figure 2.5 : Long run effect of fiscal policy under fixed exchange rate

By proposing the Mundell-Fleming model as an appropriate model for Indonesian macroeconomic policy does not, of course, necessarily mean that other approaches such as elasticity and absorption approach are not to work in the Indonesian economy. The Mundell-Fleming model which is a short run model assumes that Marshall-Lerner conditions hold, yet this assumption is one of the criticisms raised to this approach, because to this assumption is least likely to be met in the short-run[34].

The relevance of the Mundell-Fleming approach to Indonesia should be seen in comparison with the monetary approach whose assumptions such as full employment and wage flexibility are hardly to be met in the Indonesian economy. The practical implication through an empirical

observation on Indonesia economy discussed in Chapter Seven sheds lights on how Mundell-Fleming found its applicability in Indonesia.

## 2.10. Conclusion

The elasticity approach like the absorption approach does not provide an unambiguous answer to the question of whether a devaluation leads to improvement in the current account balance. It depends on how economic agents respond to the change of relative prices caused by a devaluation. Demand elasticities are higher in the long run than in the short run leading to possible ***J*** curve. Despite their simplistic assumptions and ambiguous conclusion the two approaches have remained influential, as they contain useful tools for policy makers. A devaluation is more likely to succeed when elasticities of demand for imports and exports are high and when it is accompanied by measures such as fiscal and monetary restraint that boost income relative to domestic absorption.

The monetary approach sees the balance of payments disequilibrium being a flow response to stock disequilibrium in the money market. A significant contribution of the Mabop is that it provides a set of policy recommendations. A country that adopts a fixed exchange rate will lose its monetary autonomy and a monetary expansion will lead to temporary balance of payments deficits. Whereas a country that allows its currency to float will have monetary autonomy but a monetary expansion then leads to a depreciation of its currency. Hence, this approach provides a warning to policy makers that reckless monetary policy can lead to balance of payment problems under fixed exchange rates or a currency problem under floating exchange rates. With regard to the effect of devaluation, the result is unambiguously transitory surplus in balance of payment.

The fiscal approach is the other side of the coin of Mabop in the sense that the first stresses the current account as an autonomous determining factor, while the latter concentrates on the official settlement accounts or the monetary flows as autonomous items and the purchases and sales of goods/services and investments are viewed as accommodating items. A fiscal approach emphasises that the fiscal balance is the proper macro-economic target that can be used to influence the current account.

The main contributions of policy approach or Mundell-Fleming approach are :

- the independent policy instruments should be as many as the targets of economic policy.
- the effectiveness of fiscal and monetary policy is very much dependent upon the choice of exchange rate regime and the degree of capital mobility. With perfect capital mobility, monetary policy is more effective under a floating exchange regime while fiscal policy is more effective under a fixed exchange rate regime. Under fixed exchange rate regime and perfect capital mobility, like in the monetary approach to the balance of payment, money supply or monetary policy is endogeneously determined.

While the criticisms of this approach include :

- the assumption that the Marshall - Lerner condition always holds.
- neglect of budget constrains. No private or public sector will run a deficit financed indefinitely by capital inflow, without becoming an ever increasing debtor to the rest of the world.
- neglect the supply - side factors.

Finally, it was found that the Mundell-Fleming approach was the most suitable and appropriate approach for Indonesia. And as we will see in the next chapter about Indonesia's economy and policy responses against external and internal shocks, and empirical observation in Chapter Seven, this approach seem to have been proven well fitted.

## FOOTNOTES AND REFERENCES TO CHAPTER II

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# CHAPTER III:
# INDONESIA'S OPEN ECONOMY:
# FINANCIAL POLICY ADJUSTMENTS

## 3.1. Indonesia's Adjustment Program: A Brief Summary

This chapter discusses the policy adjustments that have been continuously implemented by Indonesia in response to external shocks, with special emphasize on financial policies such as monetary and fiscal policy. In Chapter Four we will explore the performances and results of the adjustments.

The 1970s were a period of unprecedented growth of Indonesian economy, with the main stimulus provided by a sharp increase in oil prices. Since 1981, the country has experienced a series of external shocks resulting from a collapse of oil prices (in contrast to what most developing countries were experiencing), worldwide recession of the early 1980s, and depreciation of the US dollar. Indonesia's adjustment program was basically initiated in 1983 when the adverse effect of the worldwide recession on export volumes was especially severe and the decline in other commodity prices hurt Indonesia's balance of payments, although lower imports prices provided partial relief. The adjustment programs were then intensified after the second collapse of oil prices in 1986.

The depreciation of the US dollar after mid 1985 adversely affected Indonesia's external balance since a large proportion of Indonesia's foreign debt is denominated in currencies that have appreciated in relation to the dollar. As a consequence, Indonesia's total debt in dollar terms has surged.

These currency fluctuations, together with the loss of export revenue because of falling oil prices, significantly increased Indonesia's debt service payments (interest and principal). But, unlike many other developing countries, especially in Latin America, Indonesia did not have its debt service burden seriously increased by higher international interest rates, mainly because of the predominantly concessional nature and fixed interest rate of its debt. Another factor in Indonesia's favor was its low borrowing requirements (because of its large oil earnings) during 1978-81 when international borrowing rates surged.

How great was the magnitude of the adverse effects of external shocks on the Indonesian economy is illustrated on Table 3.1 below[1)]

Table 3.1
Effects of External Shocks in Indonesia, 1984-89, as a percentage of GNP

| Effect | 1984 | 1985 | 1986 | 1987 | 1988 | 1989a | 1984-88 |
|---|---|---|---|---|---|---|---|
| Terms of trade (1981 prices) | 2.5 | 2.0 | 5.7 | 15.6 | 13.3 | 14.1 | 8.9 |
| Exchange rate (1981 exchange rate) | -0.2 | -0,3 | -0.4 | 0.3 | 0.9 | 1.5 | 0.3 |
| Interest rate (1981 interest rate) | 0.6 | 0.4 | 0.1 | 0.0 | -0.5 | 0.0 | 0.1 |
| Total effect of External Shocks | 2.9 | 2.1 | 5.4 | 15.9 | 13.7 | 15.6 | 9.3 |

a. Estimated
*Source : Ibid.*, Ahmed, Sadiq, *pp. 362.*

On average, Indonesia suffered an income loss equivalent to about 9 percent of its annual gross national product (GNP) due to external disturbances during 1984-88. The loss of income was especially large in 1987 and 1988. The terms of trade effect was dominant, while the interest rate effect was minimal. The loss of income from international currency fluctuations increased significantly in 1987-88. The burden of external shocks was substantial and posed a major challenge to policy makers.

Without a forceful and quick policy response, this large loss of income could easily have destabilized the economy.

Since the first major burst of reform deregulating the banking sector in June 1983, there have been more than a dozen major policy reform packages and deregulation became the new 'catch-word' for policy-makers since then. The discussion below is to examine Indonesia's adjustment to a series of external shocks since 1981, the role of the various policy instruments in the process of stabilization and structural change, and to evaluate Indonesia's economic performance. However, before going into details of the adjustment policies themselves, it is worth outlining the policies, to grasp the overall picture and main idea of them.

The main thrust of the reform was to allow the private sector to be more initiative and to play an active role in the economy, and thereby a change in the government's role from an omnipotent presence to a mere facilitator of a more conducive business environment that placed the private sector in a more important position. The Government's strategy towards the private sector development since then changed significantly. It has recognized that the main source of financing new investment and in generating new employment opportunities and increasing non-oil export earnings will have to emanate from the private sector. As a result, the Government undertook a phased program of reforms designed to improve the incentive framework, to simplify economic regulations and to deregulate the financial sector.

The key elements of this structural adjustment program include a range of measures to strengthen domestic resource mobilization, to expand non-oil exports and to promote a more competitive and dynamic non-oil economy. The policy measures can be grouped under five broad

categories: (a) fiscal policy (b) exchange rate management (c) monetary policy (d) trade regime and (e) other regulatory reforms.

There are around 13 important deregulation measures that were introduced between June 1983 and June 1989. In examining them, it should be borne in mind that deregulation measures should be seen as policies that go together with other policies, such as "balanced" budget, as a reflection of fiscal prudence, and a relatively controlled and sound monetary and credit policy which ensures that inflation is kept in check.

### 3.2. A Broad Based Adjustment

Indonesia is often cited as a country that has been singularly successful in adjusting to a series of severe external shocks since the early 1980s. Prudent and timely macroeconomic policies and a broad range of adjustment measures have combined to reduce macroeconomic imbalances, lower distortions in the incentive regime and stimulate strong recovery. Consequently, the Indonesian economy is favorably placed to sustain a higher growth path.

The main deregulatory measures introduced are as follows[2]:

1. The first banking deregulation of 1 June 1983. This was a major financial reform that removed interest rate and credit ceilings for state bank operations and introduced new instruments of monetary control. The quantity variable (credit being reserved for state banks) was switched to a more market based mechanism (which allowed state banks to determine their own deposit and lending rates).

2. Major tax reforms of 1 January 1984 on income tax and 1 April 1984 on value added tax represented a simplification and clarification of previous laws. Income tax rates were limited to three, with the highest rate set at 35 percent. A 'self-assessment' system was introduced for taxpayers to pay tax and reducing official interference in the tax system.
3. Presidential instruction (Instruksi Presiden or Inpres) No.5/1984 gave departments and governmental institutions legal power for further deregulation, especially in licensing for investment, production, and other forms of government and private sector relationships. As a result of this Presidential Instruction, some departments, as well as the Central Bank, reduced licensing and procedural requirements related to private business activities.
4. Presidential Instruction No.4/1985, issued in April of that year was regarded as the most substantial deregulation measure taken up to that time. It covered reorganizing customs, ports and shipping to reduce freight costs and cut procedural time. The most dramatic of all the elements of this instruction was the removal of customs responsibility for international trade from the Directorate General of Customs and Excise of the Department of Finance to a private Swiss based firm, Societe General de Surveillance. With this measure, what many regarded as corrupt activities on the part of the Directorate General of Customs and Excise disappeared instantaneously. The Instruction also decreed a reduction in the number of tariff categories, and a lowering of the maximum nominal rate of protection for most items to 60 percent.

5. The 6 May 1986 package, formulated by the Co-ordinating Economic Minister, and mainly involving a decree by the Ministers of Finance and Trade. This package basically provided internationally priced inputs to exporters. This package exempted manufacturers who exported at least 85 percent of their output from duties and limitations on the import of inputs. For manufacturers exporting less than 85 percent of their output, import restrictions could still be waived provided locally supplied inputs were uncompetitive in terms of price and/ or quality, and could claim a rebate of part of any duty paid.
6. The 25 October 1986 Package. In this package, government reduced QR/NTB on several imported commodities, and put tariff barriers in their places.
7. The 15 January 1987 package. This package took the shift from 'quantity variable' limitations on imported commodities to 'price variable' limitations much further than had been done in the 25 October 1986 package.
8. The 24 December 1987 package continued the switch from QR/NTBs to tariffs as a means of regulating imports. It also allowed a reduction in the number of licenses required for various investment activities, especially those related to tourist development. For instance it was observed prior to this reform, that to build a hotel required 33 licenses or permits and even then they were valid for only one year. After the announcement of this package, only two permits were required, valid for five years.
9. The 27 October 1988 package on the financial sector and financial institutions. This essentially liberalized the whole

financial sector of the economy. Although since 1967 Indonesia had had an open capital account and free foreign exchange regime, this latest deregulation package opened up the country totally to foreign capital and financial institution. For example, previously the banking business was closed, and the only way for new enterprises to enter the business was through the purchase of existing banking licenses. Under the new regulations, a bank with paid-up capital of Rp10 billion, or less than US$6 million, could apply for a banking license in its own right. New foreign banks could enter the banking business either in their own right or through joint ventures with domestic private banks. Foreign banks were also permitted to open branches in six major cities outside Jakarta (Surabaya, Semarang, Bandung, Medan, Ujung Pandang, and Denpasar). State banks lost their monopoly of deposits by state-owned enterprises, the latter now being permitted to lodge up to 50 percent of their funds in private banks.

10. The 21 November 1988 package on trade, shipping and the industrial and agricultural sectors. This package was regarded as the most sweeping NTB reduction so far. Its coverage include the import of plastics, a highly sensitive commodity involving a monopoly by a state-owned enterprise, in co-operation with a private firm. Equally substantial were the reforms in the shipping sector. Another measure of great significance was the substantial deregulation of maritime activities to reduce costs and encourage private participation.
11. The 22 December 1988 package. In this package the capital market was deregulated even further, making foreign participation

more possible. Other financial activities like appraisal, venture capital, and insurance were also opened up to the market in ways not previously possible.

12. The March 1989 package was an elaboration of the October and December 1988 packages. Banks would now only be permitted to hold 25 percent of their assets in foreign currency (known as net open position). Together with a reduction of reserve requirements to 2 percent (reduced from 15 percent in the October 1988 Package), this has created a much greater degree of liquidity in the money market. With the rapid growth of the capital market which had grown tremendously in 1989, the money and capital market became a dynamic financial sector of the economy.
13. The June 1989 Package on reform of state-owned enterprises. Each of these enterprises was classified into one of four broad categories: very healthy, healthy, less healthy, and unhealthy. The categorization was to be based on the enterprise's liquidity, profitability, and solvency.

### 3.3. Fiscal Policy

A country's fiscal system and its fiscal performance is best seen in a historical context. In the 1950s the Indonesian fiscal system was heavily dependent on revenues from foreign trade. In the late fifties these reserves began to decline as a percentage of total revenues, as a consequence of unfavourable world market conditions, and over valued multiple exchange rate and complex trade regulation. In the years 1967-73, under a new regime, the government launched the economic stabilization and

rehabilitation program to eliminate the main cause of inflation-budget deficit. Fiscal discipline was introduced by instituting a balanced budget policy and quarterly budget programming. In the past, certain departments and agencies had been able to maintain their own budgets outside of the control of financial policy makers. From 1967 onward, all budget decisions were centralized at the Ministry of Finance.

Under the standby arrangement - the IMF program to help member countries - the IMF limited the government's expenditure to no more than 10 percent of GNP. On the revenue side, concerted efforts were made to increase taxes on international trade, particularly: custom duty collection, proceeds from excise and sales taxes, and non-tax revenues. As foreign aid became available, the government was able to balance its budget in 1968. In line with this, to be able to create larger government saving, routine expenditure has been maintained at its minimum level. The results were quite impressive. Since 1969, the beginning of The First Five Year Economic Development Plan, the routine budget has been in surplus. Ever since then, the government has been able to set aside some domestic revenue to finance its development expenditure. Under the existing structure of the government budget, with the efficiency and effectiveness of the tax and budget expenditure system, the government budget plays a significant role in promoting economic development.

In pursuit of its aim of stabilization, rehabilitation and development in the field of budget policy, the measures can be summarized as follows:

- The budget was to be balanced in the sense that total expenditure would equal total revenues from both domestic and foreign sources, including foreign borrowing. To balance the budget, current expenditures, including wages and salaries of government

employees and expenditure to maintain public utilities, were kept at minimal level. Prestige and other non-economic projects were abolished. Price controls were removed by reducing subsidies and letting prices be determined by market forces.

- Government savings (defined as domestic revenues minus routine expenditure) were to increase over time to reduce gradually the dependency on foreign aid as a means of financing development expenditure. This had become popularly known as "dynamic balanced budget".
- The tax base was progressively widened so that it became fairer and in due time should increase tax revenues. This was to be done by intensifying assessment and simplifying collection procedures.
- Government emphasised directly productive development expenditure rather than routine expenditure or subsidies to state enterprises, which were to be encouraged to be financially viable.
- Budgetary policy was designed to encourage possible maximum use of domestic resources, including labour, in order to expand domestic output. For this purpose domestic producers were to receive fiscal incentives to use labour-intensive production techniques and where necessary were to be protected against foreign competition.

Before discussing the tax reforms, it would be useful firstly to see the patterns of central government revenue. Indonesian government revenues can be broadly classified into three categories : non-oil domestic revenues, oil tax revenues, and receipts from official foreign borrowing including foreign aid and credits. The oil tax needs to be separated out from other domestic revenue because it accounts for such a large share of

Indonesian government revenue. Besides, the collection procedures and the economic implications differ from those other domestic taxes. Non-oil domestic revenues comprise all other direct and indirect taxes and non-tax revenue items. Some argue it is slightly misleading to refer to all these revenues as non-oil because they do include some revenues from the domestic sale of petroleum products, and indirect taxes derived from imports of petroleum products. However, unlike the main oil company taxes, both these categories of revenues directly reduce domestic purchasing power. There will be further discussion of the impact of oil related revenues in Chapter Five. Non-tax revenues include royalties (timber royalties being the most important), receipts from government services provided to the public, fines and profits from state enterprises and budget surplus from previous years.

The third major category of government income, which is classified as a source of revenue, rather than source of financing of the deficit, in the Indonesian budget documents, is official foreign borrowing. This includes both aid flows and the very substantial amount of official overseas borrowing at market rates of interest and concessional loans. Official foreign borrowing can take different forms, such as project aid and foreign exchange for local costs. Domestic borrowing from the non-bank sector is not yet available in contrast to many other Asian countries. This is largely due to the absence of any organized money market and undeveloped capital market where government securities could be traded.

The broad trends in government revenue patterns may be summarized as follows: (Refer to Table 4.7 in Chapter Four).

1. The oil company tax revenue has risen from under 10 percent of total revenues in 1967 to more than 60 percent in 1981/82. The

increase was particularly rapid after 1973/4 and then fell to only 26 percent in 1992/93.

2. Partly as a result of the boom in oil tax receipts, non oil domestic revenues have fallen steadily as a proportion of total revenues since 1967. In 1978/9 it comprised less than 40 percent of the total but in 1992/93 reversed to 55 percent of total revenues.
3. Within the non oil domestic revenues category the share of direct taxes in total revenues has gradually increased to more than 15 percent since 1989/90 compared to an average of 13 in the previous period. Most of the overall decline in the relative importance of non-oil domestic revenues is due to the falling revenue share of indirect taxes, though this has started to increase again since 1985/86.
4. Revenues from project aid and export credits rose sharply after 1974/5. This was, at least, partly due to a rapid increase in public development expenditure, which occurred in the wake of the oil boom but needed to be substantially financed out of suppliers' credits when Pertamina's (State Oil Company) crisis took place. After a short term reduction in the late 1970s around 15 percent, total foreign borrowing and aids as a share of total revenues since 1986/87 has increased to an average of 23 percent. The falls in oil revenue seem to have increased government foreign borrowing to maintain the targeted rate of economic growth.

The most notable feature of the 1970s Indonesian's fiscal development is the central government's increasing reliance on oil as its chief source of revenue. Oil revenue as a share of total government

revenue rose from 14 percent in 1969-70 to a peak at 62 percent in 1981-82 (Table 4.7). Non-oil revenue - GDP ratio fell from the 1969-1971 average of 8 percent (not shown) to the 1982-83 average of 4 percent (Table 4.8). The fiscal danger of such a narrow tax base was brought home dramatically in 1982 when the global recession caused oil prices to collapse. It was detected that oil revenue, expressed in 1980 rupiahs, fell from Rp7.8 billion in 1981-82 to Rp6.9 billion in 1982-1983, causing real total revenue to fall for the first time in the Indonesia history.

All of this development gave a clear message that greater internal resource mobilization was inevitable. Recognizing the weak non-oil tax effort, and the risk of lower oil revenues, the government introduced a comprehensive package of tax reforms. This sweeping tax reform implemented in 1984-1986 boosted non-oil tax revenue and improved the efficiency of the tax system. A completely revised personal and corporate income tax code came into force in January 1984, a value added tax in April 1985, and a consolidated property tax in 1986. The main objectives of the tax reform were to :

1. reduce the heavy dependency of government revenues on oil/ liquefied natural gas (LNG) taxes.
2. improve the efficiency of the tax system in the term of coverage and collection rate, and streamline the tax administration.
3. improve domestic resource mobilization and raise the buoyancy of tax revenues in relation to income growth over the long term and
4. enhance the elements of equity and social justice in the tax system.

The main features of the tax reform package are as follows :

a. The income tax reform introduced in January 1984 included :
   (i) a vastly simplified tax structure, based on three relatively low rates ( 15%, 25% 35% ) and limited deductions;
   (ii) "self assessment" of tax liability, with considerable emphasis on witholding at source;
   (iii) a drastic simplification of the tax code, including revised procedures for appeals and refunds.

b. The value added tax (VAT) introduced in April 1985 replaced the old sales tax. The basic tax rate is 10%.

   Although confined to the manufacturer-importer level, the VAT has increased revenue potential by:
   (i) subjecting domestic sales of petroleum and tobacco products to VAT;
   (ii) imposing an additional tax (10-20%) on luxury goods.

c. The new property tax (PBB) introduced in January 1986 replaced seven ordinances, including the old land (IPEDA) and net wealth taxes. The new law is conceptually simpler than its predecessors, based on a proportion of the market value of land buildings, and a single tax rate of 0.5%.

## 3.4. Exchange Rate Policy

Indonesia's exchange rate policy is characterized by three distinct phases in the period 1966 until now. The first is from October 1966 to July 1971, in which there was a steady dismantling of the multi-tiered exchange rate system into a unified exchange rate. This phase revealed a readiness to

have medium-sized devaluation to restore competitiveness, eroded by the high inflation. In the the second phase, from August 1971 to October 1978, there was a fixed exchange rate. The reason for this remarkable stability is straightforward: the balance of payment was very strong throughout the period, despite the squandering of several billion dollars of revenue by Pertamina (the state oil company). The rapid development of the oil sector together with the 1973's OPEC price increase caused Indonesian oil exports to rise from US$ 0.9 billion in 1972 to US$4.6 billion in 1974 (Table 4.9). The macroeconomic condition also did not warrant any additional stimulus which a devaluation would bring. The sustained high income growth rates of this period - 7.9 percent per year - were achieved with substantial over heating of the economy. The average 1973-78 inflation rate was 22 percent (as calculated from Table 4.2) compared with 8 percent in 1970-1972 (not shown), whereas it was around 10 percent in most developed countries. Such considerable differences between home and foreign inflation had brought about a steady real overvaluation of the rupiah with a fixed exchange rate. In sum, the fixed exchange rate during 1971-1978 had brought Indonesia's trade to rely heavily on oil, discouraging the development of the labour-intensive agricultural export sector. This was not in line with the equity and employment objectives of national economic development.

The third episode, from 1978 until today, represents a major change in Indonesia's exchange rate system, switching from the fixed exchange rate regime to a managed floating one. The practical mechanism of the authorities' intervention is basically the same as the one with the fixed rate system, in the sense that the central bank determines the exchange rate and is obligated to purchase and to sell foreign reserve without limitations. The

only difference is that the exchange rate is determined on a daily basis and is subject to change on the next day. It was officially announced that the rupiah is no longer virtually (only) pegged to the US dollar, but rather it is linked to a basket of eight currencies of Indonesia's main trading countries, in which Japan and the USA get greater weight. Under the new system, the central bank must be more active in determining an appropriate exchange rate, considering contemporaneous movements of other related economic variables, such as exchange rate movements in trading partners, changes in the level of official foreign reserves and the condition of the domestic markets. In the longer run, say quarterly or yearly, Indonesia's exchange rate movements may also reflect the development of the real sector such as the terms of trade measuring the competitiveness of domestic tradable goods in world trade.

The third episode involved three large devaluations: in November 1978, March 1983, and September 1986, separated by moderately long periods of gradual exchange rate depreciation. The first devaluation was taken on November 15, 1978, increasing the nominal exchange rate by 50 percent, from Rp415 to Rp625 for each US dollar. Second, in March 1983, the rupiah was devalued by 28 percent, from Rp707 to Rp970 per US dollar. Between the two major devaluations, in fact, there had been a very small and gradual adjustment in the exchange rate, from Rp625 in November 1978 to Rp707 for each US dollar in March 1983. However, until 1981 the exchange rate, in effect, was moving only in a very narrow band; between November 1978 and December 1980 the exchange rate was devalued by only 1 percent, while domestic prices had increased by 40 percent. Beginning in late 1981, the government through the Central Bank introduced a more flexible exchange rate policy under which the rupiah

was gradually depreciated vis-a-vis the US dollar through a series of small daily movements in the exchange rate. This more flexible approach, which can be described as a "crawling peg" system, was continued after the 28% devaluation of the rupiah on March 30, 1983. After 1981 the exchange rate moved a little more rapidly, between January 1981 and March 1983 the exchange rate was devalued by 12 percent. The third major devaluation was taken on September 12, 1986, where the exchange rate was increased by 45 percent, from Rp1,134 to Rp1,644 per US dollar. There are two, mutually compatible, explanations for the 50 percent devaluation in 1978. The first explanation is that it was an anticipatory action to the inevitable drop-off in oil export earnings due to resource depletion. The second explanation emphasizes the economic difficulties and political tensions associated with the reallocation of resources being forced upon the economy by the overvalued exchange rate. The overvaluation of rupiah was the result of maintaining the exchange rate at Rp415 to the US dollar despite the high domestic inflation from 1974 to 1977. The March 1983 and September 1986 devaluations were mainly undertaken to boost non-oil exports in the face of large declines in oil export earnings[3].

As a result of two maxi devaluations, a managed float policy and the government's ability to restrain inflation, Indonesia's real effective exchange rate depreciated by about 46 percent between December 1985 and December 1992 (Table 3.2.). The downward trend of the real effective exchange rate was generally maintained throughout the adjustment phase. The substantial depreciation of the real exchange rate played a crucial role in the adjustment process by stimulating non-oil exports and restraining imports.

Table 3.2.
Real Effective Exchange Rate, 1985-1992[1)]

| | Rupiah/ US$ | 1980=100 | | |
|---|---|---|---|---|
| | | Nominal effective rate[2)] | Relative Prices[3)] | Real effective rate[2)] |
| 1985 | | | | |
| March | 1.099 | 76.4 | 124.3 | 95 |
| December | 1,125 | 63.9 | 127.7 | 81.6 |
| 1986 | | | | |
| March | 1,127 | 59.7 | 129.1 | 77.1 |
| December | 1,651 | 38.7 | 137.7 | 53.3 |
| 1987 | | | | |
| March | 1,647 | 36.8 | 139.3 | 51.3 |
| December | 1,651 | 33.2 | 146.9 | 48.8 |
| 1988 | | | | |
| March | 1,660 | 33.0 | 147.9 | 48.8 |
| December | 1,726 | 31.5 | 150.2 | 47.3 |
| 1989 | | | | |
| March | 1,751 | 32.2 | 152.5 | 49.1 |
| December | 1,796 | 32.2 | 153.7 | 49.5 |
| 1990 | | | | |
| March | 1,820 | 32.4 | 154.7 | 50.2 |
| December | 1,892 | 28.7 | 161.0 | 46.2 |
| 1991 | | | | |
| March | 1,927 | 29.0 | 161.9 | 47.0 |
| December | 1,988 | 27.3 | 170.9 | 46.6 |
| 1992 | | | | |
| March | 2,015 | 27.6 | 173.0 | 47.7 |
| December | 2,060 | 26.4 | 175.1 | 46.2 |

Notes : 1) Exchange rate notification index. Non-oil trade-weighted; price series are seasonally adjusted
2) Increase in the index indicates appreciation of the rupiah
3) Increase in the index indicates higher inflation in Indonesia than in trading partner countries.

*Source* : IMF, Information Notice System

## 3.5. Financial and Monetary Policy

### 3.5.1. The Institutional Setting

The financial system in Indonesia is composed of an organized sector and an unorganized sector. The organized sector or the monetary system consists of the monetary authorities, the banking system and non bank financial institutions. The unorganized sector comprises all financial intermediaries outside the monetary system such as informal intercompany and interpersonal markets. It is undoubtedly believed that the latter sector has a significant role in the economic conduct of the country by serving the needs of a huge number of small scale enterprises which lack accessibility to commercial bank credits. The monetary authorities include the central bank and the Treasury (Ministry of Finance).

Unlike the central banks of many industrial countries, Bank Indonesia (BI), the central bank of Indonesia, is not an independent agency but it is an integral part of the government. It is owned wholly by the state. The management of the bank is vested in the Board of Directors, presently composed of one Governor as Chairman and seven Managing Directors as members. The Board of Directors are appointed by the President of the Republic of Indonesia. Indonesian monetary policy decision making is entrusted to the Monetary Board which consists of three members: ministers supervising the fields of finance and economy, and the Governor of BI, with the Minister of Finance as Chairman. In the Monetary Board, however, the Governor of BI has a special position, in the sense that he has the authority to submits his own views individually to the President of the Republic whenever a decision taken by the Board is, in his opinion, not in line with the current situation, objectives and economic principles. In

addition, the Governor is also an ex officio member of the Economic Stability Council which is chaired by the President. Overall economic policies are directed by this council.

The structure of the Indonesian banking system consists of a central bank, commercial banks, savings banks and rural credit banks. The commercial banks include 5 very large state banks, 130 private national banks, and 29 foreign banks; the development banks include 1 state bank, 27 regional development banks (owned and run by provincial governments) and 1 private bank. In addition, there is 1 state savings bank and 2 private savings bank.[4)]

The Indonesian banking system, for historical reasons, is dominated by the public sector in the sense that the major part of all banking activities belongs to state owned banks. The share of state banks in the total assets of all money deposits banks (excluding BI) is on average 70 percent. The state banks' credits (plus direct credits by BI) constituted the major part of all bank credits, accounting for on average 88 percent during 1973-1980 and declining to 79 percent during 1981-1987. The share of the private domestic banks in all bank credits was still minor, though there was a considerable increase in this share from only on average 6 percent during 1973-80 to 15 percent during 1980-87; by the end of March 1992 it accounted for 39 percent. The private foreign banks contributed around 5-7 percent to all bank credits over the entire period. The increase in the private domestic bank credits is the result of monetary reform launched in 1983, as a part of the structural adjustment in the financial sector.[5)]

### 3.5.2. Monetary Reforms

A special feature of the Indonesian monetary system is that it has two special characteristics: an open capital account (since 1971) and the government's policy of refraining from domestic financing of budget deficits. These characteristics imposed certain restrictions on monetary policy's role in influencing major economic and financial variables. Given the open capital account, foreign factors have a major influence on monetary policy, as it is very difficult to sustain domestic rates of interest that vary to any significant degree from those prevailing abroad over a long period without inducing capital flows. An expansionary monetary policy to achieve low interest rate would be self-defeating over the longer term, leading to inflation, capital flight and balance of payments difficulties. The domestic interest rate over the long term, then, will be determined by the international interest rate and the expected rate of depreciation of the rupiah. This standard dilemma was exacerbated by a huge increase in foreign exchange from oil earnings that had led to rapid expansion of bank credit. To limit excessive money supply expansion resulting from bank credits, government then imposed direct control over domestic credit in 1974. This policy was widely known as credit ceiling and lasted until 1983.

With all of those pictures and dilemmas as backgrounds, a major financial reform of June 1983 was launched, in which the main element was decontrol of domestic interest rate and the main aim was to mobilize domestic savings through the banking system. The sharp rise in bank deposit rates accompanied by lower inflation caused real deposit rates to become strongly positive, increasing from 7 percent in 1981 to 14 percent

in 1985. During most of the period through 1982, the incentive for financial saving was low as the real deposit rate was negative. Since then, the financialization of private savings in Indonesia has progressed very rapidly. Private saving intermediated through the financial system as a proportion of gross domestic product (GDP), known as quasi money, grew from an annual increase averaging 6.2 percent during 1974-83 to 16 percent during 1983-92 (Table 4.16, Chapter IV). The main reason for this impressive performance was the rise in the reward for holding financial assets made possible by the financial liberalization measures of 1983, especially the decontrol of deposit rates. Thus, the rising nominal and real interest rates since 1983 have contributed to the growth of the financial system as well as to the efficiency of investment financing. The challenge for the financial service industry is to increase further the financialization of savings (as a matter of fact it is still low compared to say, Malaysia and Thailand) and to channel them effectively to their highest value added uses.

The removal of the ceiling on lending rates also led to an increase in the average lending rate. High lending rates since 1983 have generated some concern about their adverse effect on private investment. As a study shows that there is a statistically negative relationship between the real interest rate and private investment in Indonesia[6]. One factor underlying the high domestic lending rates is the cost of financial intermediation, reflecting inefficiencies that have persisted in the financial sector despite the 1983 financial reform. The October-December 1988 financial measures attacked some of these outstanding problems, through increasing competition.

There were three variables affecting exchange rate expectations in the past: the swap premium rate, the differential between domestic and

international inflation, and last but not least the price of oil. As oil prices tend to be relatively stable and the swap premium is to be based on market value, international interest rate differential, the main way in which monetary policy can affect the long term interest rate is by sustaining low inflation rates and thereby dampening fears of an exchange rate depreciation.

Before the financial reform of June 1983, the Indonesian authorities proved the stringent monetary controls to be effective in limiting the expansion of bank credits, and by and large in controlling domestic inflation. In this regard, for example, the growth of liquidity credits, which induced the development of favoured economic sectors including agriculture and small enterprises, was offset by the build-up of government deposits at the central bank. However, such a policy produced undesirable effects. It inhibited mobilization of funds and discouraged the development of an efficient and professional operation of banks. In the first place, the excessive amount of central bank liquidity credit became a major source of finance to banks, discouraging banks from attracting public savings. The liquidity credit has led not only to a misallocation of resources over the years but also to the distortion of interest rates because of subsidized lending to borrowers. In the second place, the low nominal interest rate on bank deposits adjusted for the rate of inflation also inhibited the development of public funds mobilization. In the third place, the credit ceilings were considered to be binding. During 1974-1977 the actual amount of bank credits fell short of the special ceiling, and during 1978-1982 was slightly above the ceilings. The conflicting measures of easy liquidity credits and credit ceilings eventually led banks to accumulate large surpluses of funds held in the form of both rupiah and foreign

exchange, hence raising their shares in total net foreign assets at the expense of Bank Indonesia. Beside such unfavorable results, the decline in the oil revenues in the late 1982 called for a necessary reform.

As oil prices fell, the orientation of macroeconomic policy shifted from the oil economy to a more diversified non-oil economy. The government also attempted to shift from avoiding the inflationary consequence of too large a foreign exchange inflow to conserving the available supply of foreign exchange and encouraging greater mobilization of domestic financial resources. Some major policy measures took place in 1983, including a large devaluation, tightening up of fiscal policy by reducing investment expenditures and implementing new taxes, and on the monetary side, removing credit ceilings and interest rate controls. The implementation of the 1983 monetary reform was considered as being highly satisfactory, reflected by a rise in funds mobilized by banks mentioned above. Time and savings deposits in nominal term, which were only Rp0.6 trillion in 1974 increased significantly to Rp7.1 trillion in 1983 and finally reached Rp90.3 trillion in 1992 (Table 4.16). As proportion of GDP also increased significantly. The rise in the amount of funds mobilized enabled banks to expand their lendings. The expansion in lendings also included those extended to promote the business of the economically weak group and to expand non-oil exports.

The financial sector reforms initiated in June 1983 set in motion a number of sharp changes in the assets preference of domestic savers and the lending practices of financial institutions. The main objectives of the reform were:

(a) to reduce the dependence of the banking system on Bank Indonesia liquidity credits;
(b) to stimulate private financial savings;
(c) to improve the allocation of financial resources; and
(d) over the longer term, to improve bank performance through increased competition, and assist in meeting the needs of the economy for more sophisticated financial services.

Consequently, banking institutions were allowed to set their own deposit rates (except for selected savings scheme) and lending rates (except for loans refinanced through liquidity credits), credit ceilings were abolished for all banks, and the number of programs qualifying for new Bank Indonesia liquidity credits was substantially reduced.

Following the 1983 reform, in October 1988 Indonesian authorities adopted indirect instruments of monetary policy, including reserve requirement, discount window, open market operations and moral suasion. Through these instruments, the central bank has access to influencing the movement of base money, more precisely of bank reserves, and in turn pursuing aggregate monetary growth objectives. With regard to the implementation of macro economic policy, the financial reform of 1983 and the consecutive reforms have brought a gradual transition from highly controlled to market-based monetary policies.

It has been acknowledged that the implementation of such indirect measures, particularly the open market operations, will work effectively if it is supported by the presence of well functioning financial markets. In this regard, the Indonesian government also took necessary steps toward building up the domestic financial market simultaneously. In order to make

open market operations feasible, Bank Indonesia, in February 1984, introduced certificates of Bank Indonesia or 'SBI' which can be used by banks as a temporary outlet of their excess reserves. In addition, money market securities or 'SBPU', debt obligations maturing in 30 to 90 days (later extended to 180 days), were introduced in February 1985.

Notwithstanding the satisfactory results of the 1983 monetary reform, there remained some structural weaknesses regarding the institutional setting and climate that led to discouraging efficiency of the financial system and hence inhibited the optimal fulfillment of the effectiveness of monetary policy. With respect to banking and other financial institutions, a number of regulations inhibited the advancement of initiative and creativity of banks in carrying out their operation. The network of banking services had not reached all areas in the country, implying that the potentials of those regions have not been fully developed. Furthermore, non-bank financial institutions and stock markets had not been adequately developed to support sufficiently the mobilization of long term finance for real investment. Consequently, there was an imbalance in the funds' term structure with the vast majority of funds concentrated at the short end of the term spectrum. With a view to improve the soundness and the efficiency of the financial system, in October 1988, the government took a series of further adjustments in the area of finance, monetary, and banking. The October 27, 1988 package is quite comprehensive and contains several modifications of the regulatory framework governing financial, monetary and banking operations. These policies have been designed to promote the following:

1. Mobilization of funds.
2. Non-oil exports
3. Efficiency in the operations of banks and other financial institutions.
4. Effectiveness in the implementation of monetary policy.
5. Development of capital market.

According to this package, deposit money banks are now allowed to open their branches in district levels. While, non-bank financial institutions, as well as foreign banks, can now open their branches in 6 big cities. Through these policy measures, it is expected to improve and expand the financial intermediation that contributes to a more intensive and efficient mobilization of public funds. In this respect, the new measures permit the opening of branch offices of banks and non-bank financial institutions and the establishment of new private banks, joint-venture banks and rural credit banks. In order to promote further non-oil exports, the new measures also grant various facilities, including upgraded status from non-foreign exchange to foreign exchange, the opening of sub-branch offices of foreign banks and money changers, and the establishment of joint-venture banks. Another important measure was the sharp reduction of the reserve requirement from 15 percent to 2 percent of deposits. This policy will enhance the implementation of monetary policy. As regards the revitalization of the capital market as an alternative source of finance, the policy package covers some important measures, such as the imposition of 15 percent witholding tax on interest earned from deposits so as to equalize the tax treatment on income earned from holding securities.

The October 1988 policy package to a great extent has contributed to a rapid development of the financial sector. The number of banks

increased by 40 banks, from 111 before the new measures to 151 banks at the end of March 1990; bank branches grew by 930 offices, from 1914 to 2844 offices. This enlarging of banking services has greatly supported a rapid increase in public funds mobilization as we will see in Chapter Four. At the same time bank credits extended to the domestic sector grew roughly at the same pace. In addition, the stock market was booming, building up more funds available to finance domestic investment.

### 3.6. Trade Policy and Other Regulatory Reforms

From the 1970s until mid 1986, there had been a growing rate of protection in Indonesia's trade policy. Trade protections were not only in the form of high rates of tariffs on imported goods (both consumers and intermediate goods) but also in the form of widespread quantitative restrictions (quotas, licenses, etc.). Between 1980 and 1985, hundreds of products were added to the list of imports subject to some sort of restriction, so that 28 percent (about 1500 items) of imports in 1985 required some form of registration, regulation, quotas or license. The import licenses were usually given to two or three traders, or to the few firms producing competing goods domestically, and thus conferred a monopoly position to their holders. Likewise, exports were also subject to some sort of restrictions, rather than only export taxes and licenses. Examples include the ban on the export of copra, quotas on log exports during 1981-84, and a total ban on log exports in 1985[7]. Exports as well as imports, moreover, required a complex network of administrative procedures. What needs to be stressed here is that there had been conflicting measures in the conduct of Indonesia's trade policy during

1980-85. On the one hand, the conduct of trade policy was essentially an anti-export bias policy stemming from the fact that high and uneven rate of protection discriminated sharply in favor of import-substitution industries and against exportables. On the other hand, a number of other measures had been initiated to promote non-oil exports, particularly of manufactures. Such measures included the export certificate scheme[8], the opening of export processing zones and special credit facilities. It was the authorities' intention since the 1978 devaluation to promote non-traditional exports, but the practice of external policies was discouraging. The root of the problem, the unfavorable industrial structure due to high protectionist and interventionist trade policy, remained deeply entrenched at least until early 1986. The net effect of the conflicting measures was probably to retard activity in almost all sectors (not only in imports and exports) until 1986, when substantial deregulations of export procedures were undertaken.

Another important observation that can be inferred from trade policy conducted during 1980-85, is that it was not supportive to the exchange rate policy. The three large devaluations (November 1978, March 1983 and September 1986), have been considered to some extent successful in bringing about a favorable competitiveness of Indonesia's non-oil exports, but the intrusion of a non-supportive trade policy caused substantial movements in relative prices which were unfavourable for the tradable sector. The price of tradables is set by international competition, while those of non-tradables are determined by domestic cost structure which is primarily determined by domestic wages on the supply side and domestic macro conditions on the demand side. The imposition of tariffs on imported consumer goods would raise to the domestic price of such goods, thereby will increase competitiveness of domestic producers of such

tradable goods in the domestic market. Import quotas on consumer goods would not raise the relative prices but domestic producers of such goods would be protected from international competition. However, import quotas on an imported input or raw materials to the tradable sector would reduce the profitability of the tradable sector without any change in the relative prices. Likewise, tariffs on imported raw materials would increase production costs, and hence lower competitiveness of domestic producers of tradable goods. Under such distortions, movements in the relative prices due to the exchange rate management may not provide a full effect on the increase in non-oil export earnings. Although competitiveness index before the devaluation in 1986 shows almost the same value as after the devaluation of 1979 (110 versus 111), it does not mean that the August 1986 exchange rate was not overvalued[9]. It is of course an empirical question how much the additional non-oil export earnings would have been in the absence of quantitative restrictions, especially in the comparison to the fall in oil export earnings. The rapid growth of industrialization in Indonesia was therefore largely supported by domestic consumers' willingness to pay the high costs incurred by domestic producers, implying a large transfer of surplus from consumers to producers, i.e. income transfer from large numbers of the population to few people. Such a policy was clearly not in line with the equity objective stated by the government.

The trade and industrial sector remained rigid until early 1986, compared to the financial sector where liberalization has been put into effect since 1983. A possible explanation for such a prolonged, restricted trade policy is a political one, where decisions on Indonesian economic policy were largely influenced by competing groups both inside and outside the bureaucracy. Economic policies concerning exchange rate,

monetary and fiscal policy are designed and conducted by "economic agencies" headed and staffed by economists that belong to the so-called "technocrats" or "economic team". Such agencies include the State Coordinating Ministry for Economy, Finance and Industry, Ministry of Finance, the Central Bank, and the Development Planning Board. This "school of thought" favors greater liberalization in all economic sectors toward a greater role of the market mechanism and a more outward-looking industrial strategy. Meanwhile, policies governing the quantitative restrictions on imports and non-tax policies concerning direct foreign investment are the responsibility of the so-called sectoral agencies, which include the Ministry of Industry and Agriculture, and the Foreign Investment Board. The sectoral ministries are headed and staffed by "technicians", a group consisting of engineers, military officers and other non-economists. They generally favor a more inward-looking strategy. The view had been conducive to the growing rate of protection and sorts of government intervention, and to an increase in the number of rent seekers in the industrial sector. In turn, this group appeared to pose strong resistance to the industrial and trade reform. However, with pressure from international institutions such as World Bank, IMF, and international corporate interests, there has been a tendency toward gradual deregulation and reform in the Indonesian industrial and trade sector.

The government initiated a series of trade and other regulatory reforms to increase the effectiveness of demand management policies in reducing macroeconomic imbalances and to enable a recovery of economic growth over the medium term. In 1985, the government instituted across-the board reduction in tariffs. The tariff ceiling for most products was lowered from 225% to 60% and the number of tariff levels was reduced

from 25 to 11. In response to the sharp drop in oil prices in early 1986, the government embarked upon an accelerated and more sweeping program of trade and industrial policy reforms designed to improve the international competitiveness of the private sector and to reduce the bias against exports.

The first step was taken on May 6, 1986, when measures to provide internationally-priced inputs to exporters was announced. In addition, a duty draw back facility was created to enable indirect exporters to reclaim import duties. The second, more fundamental step was taken in October 1986, when the government introduced the first of a series of trade deregulation packages. The primary objective of these trade-reform measures was to move away from a trade regime based on import or export license protection towards one based on tariffs. Another package of trade policy measures was announced in November 1988. The share of total domestic production protected by import licensing declined from 52% in mid 1986 to 29% by end of 1988.

Along with the trade-related reform measures, the government also streamlined the investment approval process and relaxed investment licensing and other controls. Steps taken to reduce the red tape to foreign investment have significantly reduced the differences in treatment between foreign and domestic firms. In May 1986 the government also converted the Investment Priority List to a short negative list, thereby increasing the transparency of the system and opening up new sectors to domestic and foreign investment. The deregulation measures in conjunction with sound macroeconomic policies have had a strong positive effect on both domestic and foreign private investment. Unlike the 1970s and early 1980s when

much of private investment was oriented towards import substitution, the bulk of the new investment approvals is directed to export industries.

## FOOTNOTES AND REFERENCES TO CHAPTER III

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[1] Sadiq, Ahmed, "Indonesia: Stabilization and Structural Change", in Restructuring Economies in Distress, Policy Reform and The World Bank, edited by Vinod Thomas et al., October 1989, pp. 362.

[2] The discussion are mainly extracted from Sjahrir and Colin Brown "Indonesian Financial Policy Deregulation : Reform and Response" in The Dynamic of Economic Policy Reform in South-East Asia and the South West Pacific, edited by MacIntyre and Jayasurya, Oxford, 1992, pp. 125.

[3] Wing Thye Woo and Anwar Nasution :"The Conduct of Economic Policies in Indonesia and Its Impact on External Debt", in Jeffry D. Sachs's, Developing Country Debt and The World Economy , National Bureau of Economic Research, The University of Chicago Press, 1969, pp. 101.

[4] Position in March 1992, Table IV.1, Indonesia Financial Statistics, Bank Indonesia, May 1992, p. 109.

[5] *Ibid*, Indonesia Financial Statistics, p. 39.

[6] See Sadiq Ahmed and Ajay Chhibber , "How can Indonesia maintain creditworthiness and non inflationary growth", PPR working papers, Unpublished, The World Bank, October 1989, pp. 22.

[7] Gillis, Malcolm and Dapice, David, "Indonesia", The Open Economy: Tools For Policy Makers in Developing Countries, edited by Rudiger Dornbusch and F. Leslie C. Helmers (eds.), 1988, pp. 324.

[8] The export certificate scheme created in 1978 provided drawbacks of import duties and rebates of internal indirect taxes for a variety of manufactured exports.

[9] *Ibid.*, Woo and Nasution, pp. 111.

# CHAPTER IV:
# INDONESIAN ECONOMY: PERFORMANCE AND ISSUES

## 4.1. Indonesian Economy in Comparative Perspective

This chapter discusses the results or the performances of the financial adjustments reviewed in the preceding chapter, some policy drawbacks and issues that emerged thereafter.

Putting Indonesia first in the global perspective will help us identify the distinctive features of this country compared to other developing countries. To begin with it is worth mentioning the way countries were chosen by The Project on Developing Country Debt undertaken by the National Bureau of Economic Research[1)]

> "...The choice of countries was dictated by several considerations. **First,** the project aimed to include the countries with the **largest external debt**.....
> **Second** the project was designed to investigate both **successes** and **failures in external debt management**.....We have countries that succumbed to serious crisis, and have so far not recovered (Argentina, Bolivia, etc.) ; a country which succumbed to crisis but has recovered in substantial part (Turkey ) ; and two countries that did not succumb to an external debt crisis (**Indonesia** and South Korea ).
> **Third**, the project aimed to compare countries that **varied widely in economic structure, particularly in the structure of international trade**. Thus, as shown in the following Table, our case studies include countries heavily dependent on *primary commodity exports* (Argentina, Bolivia, **Indonesia** ); countries with a *mix of commodity* and *manufactured exports* (Brazil, Mexico, etc.); and a country almost wholly dependent on *manufactured exports* (South Korea) ..... Economic growth is strong, and inflation relatively low, in South Korea, **Indonesia,** and Turkey. The Latin American economies all have low growth (negative in percapita terms), and very high inflation. The external debt burden, measured by the debt-

export ratio, is heaviest in Latin America and the Philippines, and relatively light in **Indonesia** and South Korea. Turkey is ranked in the middle. .....In the final column of the table, two countries (**Indonesia** and South Korea), escaped a debt crisis altogether, though **Indonesia**'s debt position remains somewhat precarious. Turkey's crisis came in the late 1970s, before the onset of the global crisis. The Latin American economies and the Philippines have all been engaged in repeated rescheduling since 1982-83."

Table 4.1.
Economic Performance in the Eight NBER Countries

| Country | GDP 1980-1985 | Inflation 1980-1985 | Primary-share of Commodities in exports, 1985 | Debt-Export Ratio, 1985 | Debt Re-scheduling 1975-1986 |
|---|---|---|---|---|---|
| Argentina | -1.4 | 342.8 | 82 | 576 | Yes |
| Bolivia | -4.5 | 569.1 | 94 | 601 | Yes |
| Brazil | 1.3 | 147.7 | 59 | 417 | Yes |
| **Indonesia** | 3.5 | 10.7 | 89 | 191 | **No** |
| Mexico | 0.8 | 62.2 | 73 | 445 | Yes |
| Philippines | -0.5 | 19.3 | 49 | 563 | Yes |
| South Korea | 7.9 | 6.0 | 9 | 156 | No |
| Turkey | 4.5 | 37.1 | 46 | 315 | Yes |

*Source:* World Bank, *World Development Report, 1987.* GDP and inflation measures are annual rates of change

Meanwhile John Bunton (1983)[2)] wrote on Indonesia as follows:

" .....With the whole of the world to choose from, why choose Indonesia? The answer to that unashamedly rhetorical question is simply that on current form Indonesia *is arguably the best long term market in the world* for Western Goods and Western expertise. .....*it has a better prospect* of sustained growth and (despite anything its detractors may say) a better prospect of political stability - a rare commodity in many developing countries. It is *firmly tied to the Western free - enterprise ethic* and *welcomes Western investment* and *participation,* often on terms that are extremely favorable, *largest market in the South East Asia,* and in *sheer physical size is bigger than the United States of America,*...ranks as the third richest nation in the world in terms of natural resources, ... the world's

> eighth largest *oil producer*, and is the world's largest exporter of *liquid natural gas*, the world's third largest producer of *tin*. It was, until a recent change in export policy, the world's major producer of tropical *hardwoods* (it is currently in second place) .....the next three years or so will almost certainly become the world's largest producer of *hard-wood-based plywood*. It is the world's second largest producer of *natural rubber* and *palm oil*, and is set to become one of the largest, if not *the* largest, exporter of cement and urea-based *fertilizers* in Asia. In short: with its large population (*note*: in 1992 is around 180 million.) and vast natural resources, Indonesia is potentially one of the biggest and most promising markets."

Accordingly, in other words Indonesia fulfills four classic factors that are considered good in any market: *wealth* (or natural resources that generate wealth), *people, political stability*, and *free-enterprise ethic*. Regarding Indonesia's economic development, John Bunton further wrote:

> Indonesia has the fastest-expanding economy in South East Asia, which itself (according to a recent report by the US Department of Commerce) has the most rapidly expanding economy of any region in the world. By 1990 the Gross National Product of the five nations of the Association of South East Asian Nations (ASEAN) will have doubled - the biggest pro rata increase taking place in Indonesia....Overall the ASEAN economy...at least until the end of this century, making it (says the Department of Commerce) *the new centre of world economic power*

The discussion of Indonesia's achievements in economic progress compared to other countries has been broadly elaborated in the footnotes of Chapter One.

## 4.2. Indonesian Economy in Historical Perspective

To get a better picture of the Indonesian economy, an understanding of the economic conditions before the establishment of the New Order government in 1966 is important. This is due to fact that the economic policies of the 1950-65 period left a very strong mark on the institutional memory of the new government. During this period, the Indonesian government was preoccupied with domestic political and military problems, with the restoration of sovereignty on West Irian (one of the biggest islands) and with political recognition in the world forum (Indonesia got its independence in 1945). Little effort and resources were devoted to economic development. An increasingly difficult budget situation made inflation a major problem. Taxes on trade were the major source of government revenue, but overvalued multiple exchange rate system, unfavorable world market conditions for rubber and other commodities and complex trade regulation were reducing the profitability of the tradable sector, causing it to shrink. The twin rebellions on the islands of Sumatera and Sulawesi in 1958 made the budget situation even worse, because both of these islands were important sources of export tax revenue. The monetization of the budget deficits (money creation by the Central Bank) raised the average 1958-1961 inflation rate to 25 percent from the 1950-57 average of 17 percent. The budgetary pressure grew steadily worse, resulting in a period of high inflation in 1962-1965. Between 1962 and 1964 both money supply and the cost of living index roughly doubled every year, and by the end of 1965 they were doubling every week. In 1966, inflation culminated at 600 percent. Economic growth slowed to 0.8 percent per year in this turbulent period. The evolution of the export-to-gross domestic product ratio declined steadily.

The internal political conflict culminated with the abortive coup by military personnel sympathetic to the Indonesian Communist Party (PKI) on 30 September 1965. The political chaos aggravated the economic instability. The increasing economic difficulties speeded up the transfer of authority from President Soekarno to the anti-Communist General Soeharto in the following year. Among so many economic policies being implemented by the new Government, one policy should get special attention, namely "balanced" budget policy[3]. The economic chaos of the 1958-65 period left such a deep impression that the new Government has had this policy since 1968.

The development of the Indonesian economy during the new order government may be divided into four periods: 1967-73, 1973-80, and 1980-1986 and 1986-1992 (for the purpose of the study). The first period was recognized as the years of survival, after political and economic disaster and hyper inflation as mentioned above. The remarkable increase in economic growth during the subsequent years began with the implementation of the First Five Year Development Plan in 1969. During the period 1967-73 the real GDP grew at an average of 6.3 percent and the annual rate of inflation was 40.7 percent. Although the inflation rate was on average still high, its trend performed quite satisfactorily, sharply declining from three digits in the earlier period of the new order regime to only 27.3 percent in 1973 (Table 4.2).

Over 1973-80, the second period, the Indonesian economy had benefited first from the rise in the price of oil exports brought about by the action of the oil-exporting countries (OPEC), then from export of LNG (Liquefied Natural Gas) since 1977. The real GDP growth rose on average at 7.7 percent per-annum and the inflation rate was reduced to 17.6 percent. The oil boom at the end of 1973 resulted in high pressure on

domestic inflation. Hence in 1974 the rate of inflation was 33.3 percent, the highest ever during the second period and thereafter. With strong memories of the miserable hyper inflation during the earlier period, along with the strong pressure on domestic rate of inflation from external sources due especially to the oil boom during the 1970s, price stability along with the sustained high rate of economic growth was the major goal of macroeconomic policies set up throughout the period. This goal seemed to be maintained during the 1980s.

The third episode, covering the period 1980-1986, was denoted by a drastic fall in the country's economic growth rate. The real GDP fell considerably to only 4.3 percent, but the rate of inflation also declined on average to 8.4 percent per year; in 1985 the inflation rate was as low as 4.3 percent, the lowest that ever happened in the history of this country. It is widely acknowledged that such a slow economic growth during 1980-1986 was attributable to the world recession in the early 1980s, but it was also due to the sharp decline in the world oil price in 1982 following the breakdown of the OPEC arrangement.

The last onset of the period, 1986-1992 can be attributed to the period of second oil price fall in 1986 which was also a period packed full of adjustments, as discussed in Chapter Three. In response to external shocks, the government implemented a broad range of adjustment measures and structural policy reforms that significantly reduced the macroeconomic imbalances while allowing economic growth to remain positive in percapita terms. The results were quite promising, the average annual growth during this period jumped to 6.3 percent. Indonesia's long-term growth prospects would undoubtedly have been jeopardized had these necessary adjustments not been implemented. Crucial to Indonesia's

strong economic performance has been a sustained program of market-oriented policy reform, which is discussed in the preceding chapter.

Table 4.2.
Annual GDP growth, Inflation Rate and Population Growth
1967-1992

| Year | GDP growth rate (at 1973 constant prices)* | Inflation rate | Population growth rate |
|---|---|---|---|
| 1967-1973 | 6.3 | 40.7 | 2.1 |
| 1973 | 11.3 | 27.3 | 2.4 |
| 1974 | 7.6 | 33.3 | 2.4 |
| 1975 | 4.9 | 19.7 | 2.4 |
| 1976 | 6.9 | 14.2 | 2.4 |
| 1977 | 8.8 | 11.8 | 2.4 |
| 1978 | 7.8 | 6.7 | 2.4 |
| 1979 | 6.3 | 21.8 | 2.4 |
| 1980 | 9.9 | 15.9 | 2.4 |
| 1981 | 7.9 | 7.1 | 2.0 |
| 1982 | 2.3 | 9.7 | 1.8 |
| 1983 | 4.2 | 11.5 | 1.8 |
| 1984 | 6.0 | 8.8 | 1.8 |
| 1985 | 2.3 | 4.3 | 1.8 |
| 1986 | 5.9 | 8.8 | 1.8 |
| 1987 | 4.9 | 8.9 | 1.8 |
| 1988 | 5.8 | 5.5 | 1.8 |
| 1989 | 7.5 | 5.9 | 1.8 |
| 1990 | 7.1 | 9.5 | 1.8 |
| 1991 | 6.9 | 9.9 | 1.7 |
| 1992 | 6.4 | 5.0 | 1.7 |
| Average | | | |
| 1973-1980 | 7.7 | 17.6 | 2.4 |
| 1980-1986 | 4.3 | 8.4 | 1.9 |
| 1986-1992 | 6.3 | 7.7 | 1.8 |

**Source :** Indonesia's Central Bureau of Statistics
* Since 1987, based on 1983 constant prices

Table 4.3.A

**Indonesia : Gross Domestic Product By Sector**

(billion rupiahs : constant prices)

| | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 |
|---|---|---|---|---|---|---|---|---|---|---|
| Agriculture | 210.4 | 213.9 | 220.9 | 212.7 | 223.6 | 225.3 | 236.1 | 232.1 | 255.2 | 260.1 |
| Mining and quarrying | 14.4 | 14.6 | 15.4 | 14.9 | 15.6 | 16.0 | 14.4 | 16.7 | 22.8 | 27.7 |
| Manufacturing | 32.6 | 36.6 | 37.1 | 36.4 | 35.9 | 35.6 | 36.3 | 37.5 | 40.8 | 46.6 |
| Electricity, gas and water supply | 1.1 | 1.2 | 1.3 | 1.5 | 1.7 | 1.7 | 1.7 | 2.2 | 2.3 | 2.6 |
| Construction | 7.9 | 10.2 | 8.6 | 6.5 | 6.5 | 7.4 | 8.4 | 7.3 | 9.2 | 12.1 |
| Trade, hotel and restaurant | 55.8 | 64.7 | 64.4 | 66.2 | 68.1 | 67.4 | 64.5 | 70.8 | 78.8 | 88.8 |
| Transportation and Communication | 14.5 | 14.5 | 14.9 | 15.3 | 14.8 | 15.1 | 15.2 | 15.6 | 15.9 | 16.5 |
| Bank and Financial services | 3.9 | 4.9 | 4.2 | 3.5 | 4.3 | 4.3 | 3.4 | 3.5 | 4.0 | 6.6 |
| Rental | 7.7 | 8.1 | 8.2 | 8.1 | 8.3 | 8.4 | 8.7 | 8.8 | 9.7 | 10.4 |
| Government and Defence | 17.6 | 19.2 | 19.6 | 19.8 | 19.9 | 21.3 | 24.3 | 24.7 | 28.8 | 29.3 |
| Services | 24.3 | 24.7 | 25.6 | 25.9 | 26.6 | 27.4 | 27.9 | 28.8 | 29.4 | 30.1 |
| **Gross Domestic Product** | ***390.2*** | ***412.6*** | ***420.2*** | ***410.8*** | ***425.3*** | ***429.9*** | ***441.9*** | ***448.0*** | ***496.9*** | ***530.8*** |
| | **1970** | **1971** | **1972** | **1973** | **1974** | **1975** | **1976** | **1977** | **1978** | **1979** |
| Agriculture | 270.7 | 281.0 | 287.0 | 2,710.0 | 2,811.0 | 2,811.2 | 2,943.7 | 2,981.3 | 3,134.8 | 3,255.6 |
| Mining and quarrying | 32.2 | 34.0 | 41.0 | 831.0 | 859.0 | 828.1 | 952.3 | 1,070.0 | 1,040.3 | 1,046.9 |
| Manufacturing | 51.1 | 58.0 | 61.0 | 650.0 | 755.0 | 847.9 | 930.0 | 1,057.7 | 1,176.5 | 1,395.3 |
| Electricity, gas and water supply | 3.0 | 3.0 | 4.0 | 30.4 | 37.0 | 41.2 | 46.3 | 49.0 | 53.3 | 68.6 |
| Construction | 15.2 | 18.0 | 22.0 | 262.0 | 320.0 | 364.8 | 384.5 | 463.8 | 528.9 | 562.8 |
| Trade, hotel and restaurant | 100.2 | 108.0 | 124.0 | 1,118.0 | 1,224.0 | 1,293.8 | 1,350.7 | 1,438.2 | 1,530.3 | 1,681.1 |
| Transportation and Communication | 17.4 | 22.0 | 25.0 | 257.0 | 288.0 | 302.7 | 342.6 | 427.6 | 490.1 | 559.8 |
| Bank and Financial services | 8.6 | 11.0 | 12.0 | 83.0 | 88.0 | 101.6 | 117.4 | 151.2 | 164.6 | 179.6 |
| Rental | 11.2 | 12.0 | 13.0 | 143.0 | 174.0 | 198.4 | 209.1 | 252.2 | 267.6 | 306.1 |
| Government and Defence | 30.4 | 32.0 | 33.0 | 405.0 | 443.0 | 564.1 | 596.5 | 689.8 | 767.9 | 805.1 |
| Services | 30.9 | 32.0 | 32.0 | 264.0 | 270.0 | 277.0 | 284.2 | 290.1 | 296.9 | 304.0 |
| **Gross Domestic Product** | ***570.9*** | ***611.0*** | ***654.0*** | ***6,753.4*** | ***7,269.0*** | ***7,630.8*** | ***8,156.3*** | ***8,870.9*** | ***9,471.2*** | ***10,164.9*** |

Table 4.3.B

**Indonesia : Gross Domestic Product By Sector**

(billion rupiahs : constant prices)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|
| Agriculture | 3,424.90 | 3,593.50 | 3,669.80 | 17,764.70 | 18,512.60 | 19,300.00 | 19,799.10 | 20,223.50 | 21,213.70 | 21,917.80 |
| Mining and quarrying | 1,034.60 | 1,069.10 | 939.80 | 16,107.40 | 17,120.10 | 15,480.40 | 16,308.60 | 16,365.50 | 15,892.90 | 16,663.80 |
| Manufacturing | 1,704.60 | 1,877.80 | 1,900.70 | 9,896.40 | 2,078.80 | 13,430.50 | 14,678.10 | 16,235.30 | 18,182.30 | 19,855.70 |
| Electricity, gas and water supply | 77.90 | 89.90 | 105.50 | 313.90 | 324.00 | 360.90 | 429.80 | 494.60 | 548.90 | 615.60 |
| Construction | 639.30 | 720.20 | 757.80 | 4,597.20 | 4,393.80 | 4,508.00 | 4,609.00 | 4,802.90 | 5,259.10 | 5,878.00 |
| Trade, hotel and restaurant | 1,851.90 | 2,042.60 | 2,158.80 | 11,418.70 | 11,811.00 | 12,398.60 | 13,398.50 | 14,356.20 | 15,656.90 | 17,338.10 |
| Transportation and Communication | 609.40 | 676.90 | 716.60 | 4,098.10 | 4,443.10 | 4,487.00 | 4,668.40 | 4,938.50 | 5,211.50 | 5,811.50 |
| Bank and Financial services | 207.80 | 231.40 | 258.40 | 2,358.60 | 2,829.00 | 3,020.30 | 3,483.10 | 3,659.30 | 3,752.20 | 4,290.70 |
| Rental | 335.80 | 358.70 | 377.40 | 2,355.50 | 2,411.50 | 2,460.90 | 2,545.10 | 2,653.90 | 2,762.20 | 2,877.70 |
| Government and Defence | 971.70 | 1,075.80 | 1,114.50 | 5,711.50 | 5,996.70 | 6,455.10 | 6,862.10 | 7,366.10 | 7,932.00 | 8,396.90 |
| Services | 311.30 | 318.70 | 326.10 | 3,000.80 | 3,116.80 | 3,180.20 | 3,298.60 | 3,422.10 | 3,569.70 | 3,790.80 |
| **Gross Domestic Product** | ***11,169.2*** | ***12,054.6*** | ***12,325.4*** | ***77,622.8*** | ***83, 037.4*** | ***85, 081.9*** | ***90, 080.4*** | ***94, 517.9*** | ***99, 981.4*** | ***107, 436.6*** |
| | **1990** | **1991** | **1992** | **1993** | | | | | | |
| Agriculture | 22,356.9 | 22,714.8 | 24,225.5 | 24,569.30 | | | | | | |
| Mining and quarrying | 17,531.7 | 19,317.0 | 18,957.7 | 19,370.30 | | | | | | |
| Manufacturing | 22,336.9 | 24,585.0 | 26,963.6 | 29,484.40 | | | | | | |
| Electricity, gas and water supply | 725.7 | 842.8 | 928.2 | 1,022.30 | | | | | | |
| Construction | 6,672.9 | 7,423.7 | 8,223.6 | 9,222.50 | | | | | | |
| Trade, hotel and restaurant | 18,568.6 | 19,576.2 | 21,009.1 | 22,850.10 | | | | | | |
| Transportation and Communication | 6,367.9 | 6,869.4 | 7,554.9 | 8,302.20 | | | | | | |
| Bank and Financial services | 4,893.8 | 5,535.1 | 6,255.7 | 7,069.60 | | | | | | |
| Rental | 2,998.8 | 3,119.7 | 3,249.3 | 3,411.10 | | | | | | |
| Government and Defence | 8,783.3 | 9,052.1 | 9,320.0 | 9,506.80 | | | | | | |
| Services | 3,980.8 | 4,189.4 | 4,497.2 | 4,896.50 | | | | | | |
| **Gross Domestic Product** | ***115,217.3*** | ***123,225.2*** | ***131,184.8*** | ***139,707.1*** | | | | | | |

*Notes* : 1960-1973 based on 1960 prices; 1973-1983 based on 1973 prices; 1983-1992 based on 1983 prices

**Source** : National Income of Indonesia Publication, Indonesia's Central Bureau of Statistics, various issues

Table 4.3.C

**Indonesia : Gross Domestic Product By Expenditure Sector**

(billion rupiahs : constant prices)

| | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 |
|---|---|---|---|---|---|---|---|---|---|---|
| Private Consumption | 311.4 | 335.8 | 359.2 | 345 | 347.7 | 356 | 350.8 | 381.8 | 416.7 | 441.2 |
| Government consumption | 45.1 | 42 | 33.8 | 34 | 40 | 29 | 40.3 | 35.8 | 40.6 | 42.1 |
| Gross domestic fixed capital formation | 30.7 | 44.1 | 40.1 | 30.6 | 34.8 | 36.2 | 40.7 | 33.2 | 40.6 | 52.2 |
| Change in stock* | - | - | - | - | - | - | - | - | - | - |
| Export of goods and services | 52 | 56.7 | 51.8 | 48.7 | 54.5 | 56.2 | 55.6 | 55.5 | 61.3 | 69.9 |
| *less* Imports of goods and services | 49 | 66 | 64.7 | 47.5 | 51.7 | 47.5 | 45.5 | 58.3 | 62.3 | 74.6 |
| **Gross Domestic Product** | ***390.2*** | ***412.6*** | ***420.2*** | ***410.8*** | ***425.3*** | ***429.9*** | ***441.9*** | ***448*** | ***496.9*** | ***530.8*** |
| Net factor income from abroad | -3.2 | -3.4 | -3.4 | -3.3 | -3.5 | -3.5 | -3.7 | -3.7 | -4.2 | -4.3 |
| **Gross National Product** | ***387*** | ***409.2*** | ***416.8*** | ***407.5*** | ***421.8*** | ***426.4*** | ***438.2*** | ***444.3*** | ***492.7*** | ***526.5*** |
| *less* Net indirect taxes | 23.8 | 25.2 | 25.6 | 25.1 | 25.9 | 26.2 | 26.9 | 27.3 | 30.3 | 32.4 |
| *less* Depreciation | 23 | 24.4 | 24.8 | 24.2 | 25.1 | 25.3 | 26.2 | 26.4 | 29.3 | 31.3 |
| **National Income** | ***340.2*** | ***359.6*** | ***366.4*** | ***358.2*** | ***370.8*** | ***374.9*** | ***385.1*** | ***390.6*** | ***433.1*** | ***462.8*** |
| | **1970** | **1971** | **1972** | **1973** | **1974** | **1975** | **1976** | **1977** | **1978** | **1979** |
| Private Consumption | 453.7 | 474 | 506 | 4,790.70 | 5,453.60 | 5,678.90 | 6,031.60 | 6,433.20 | 6,955.10 | 7,865.80 |
| Government consumption | 49.2 | 53 | 52 | 716.00 | 641.00 | 835.50 | 896.70 | 1,044.40 | 1,156.10 | 1,345.00 |
| Gross domestic fixed capital formation | 69.4 | 84 | 100 | 1,208.00 | 1,440.00 | 1,650.20 | 1,749.20 | 2,027.50 | 2,332.90 | 2,436.00 |
| Change in stock* | - | - | - | - | - | - | - | - | - | - |
| Export of goods and services | 82.3 | 92 | 113 | 1,354.30 | 1,403.40 | 1,266.80 | 1,425.20 | 1,744.00 | 1,776.30 | 1,822.00 |
| *less* Imports of goods and services | 83.7 | 92 | 117 | 1,315.60 | 1,669.00 | 1,800.60 | 1,946.40 | 2,378.20 | 2,749.20 | 3,303.90 |
| **Gross Domestic Product** | ***570.9*** | ***611*** | ***654*** | ***6, 753.4*** | ***7, 269*** | ***7, 630.8*** | ***8, 156.3*** | ***8, 870.9*** | ***9, 471.2*** | ***1, 0164.9*** |
| Net factor income from abroad | -4.7 | -5 | -5 | - 245.70 | - 369.00 | - 360.30 | - 366.50 | - 422.70 | - 513.80 | - 649.20 |
| **Gross National Product** | ***566.2*** | ***606*** | ***649*** | ***6, 507.7*** | ***6, 900*** | ***7, 270.5*** | ***7, 789.8*** | ***8, 448.2*** | ***8, 957.4*** | ***9,515.70*** |
| *less* Net indirect taxes | 34.8 | 37 | 40 | 328.00 | 351.70 | 370.60 | 399.10 | 430.80 | 460.00 | 495.70 |
| *less* Depreciation | 33.7 | 36 | 39 | 439.00 | 472.50 | 496.00 | 530.80 | 576.60 | 615.60 | 663.50 |
| **National Income** | ***497.7*** | ***533*** | ***570*** | ***5, 740.7*** | ***6, 075.8*** | ***6, 403.9*** | ***6, 859.9*** | ***7, 440.8*** | ***7, 881.8*** | ***8,356.50*** |

Table 4.3.D

**Indonesia : Gross Domestic Product By Expenditure Sector**

(billion rupiahs : constant prices)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|
| Private Consumption | 8,867.70 | 10, 349.5 | 10, 697.5 | 47, 063 | 48, 942.2 | 49, 448 | 50, 530.0 | 52, 200.4 | 54, 225.0 | 56, 475.7 |
| Government Consumption | 1,489.60 | 1, 641.0 | 1,776.10 | 8, 077.3 | 8, 353.0 | 8, 991.2 | 9, 241.3 | 9, 225.7 | 9, 924.3 | 10,966.30 |
| Gross domestic fixed capital formation | 2,896.00 | 3, 218.5 | 3,636.70 | 19, 467.9 | 18, 296.5 | 19, 615.8 | 21, 421.7 | 22, 596.8 | 25, 200.9 | 28,568.10 |
| Change in stock* | - | - | - | 2, 793.5 | 4, 452.0 | 6,641.30 | 6, 332.7 | 5, 049.2 | 1, 119.9 | 1,417.20 |
| Export of goods and services | 1,719.30 | 1, 678.2 | 1,444.30 | 19, 847.0 | 21, 144.9 | 19, 494.7 | 22, 460.3 | 25, 744.8 | 26, 015.5 | 28,733.20 |
| *less* Imports of goods and services | 3,803.40 | 4, 832.6 | 5,229.20 | 19, 625.9 | 18, 151.2 | 19, 109.1 | 19, 905.6 | 20, 299.0 | 16, 504.2 | 18,722.90 |
| **Gross Domestic Product** | ***11, 169.2*** | ***12, 054.6*** | ***12, 325.4*** | ***77, 622.8*** | ***83, 037.4*** | ***85, 081.9*** | ***90, 080.4*** | ***94, 517.9*** | ***9[illegible], 981.4*** | ***107, 436.6*** |
| Net factor income from abroad | - 758.70 | - 673.70 | - 652.70 | -3,283.10 | -3,821.70 | -3,846.10 | -3,802.20 | -4,247.70 | -3,481.70 | - 3,710.60 |
| **Gross National Product** | ***10, 410.5*** | ***11, 380.9*** | ***11, 672.7*** | ***74, 339.7*** | ***79, 215.7*** | ***81, 235.8*** | ***86, 278.2*** | ***90, 270.2*** | ***96, 499.7*** | ***103, 726*** |
| *less* Net indirect taxes | 544.30 | 587.40 | 600.60 | 2, 450.8 | 2, 515.9 | 3, 154.7 | 5, 727.4 | 5, 399.0 | 6, 356.1 | 7, 997.1 |
| *less* Depreciation | 728.50 | 786.20 | 803.90 | 3, 881.1 | 4, 151.9 | 4, 254.1 | 4, 504.0 | 4, 752.9 | 4,996.20 | 5, 362.6 |
| **National Income** | ***9, 137.7*** | ***10, 007.03*** | ***10, 268.2*** | ***68, 007.8*** | ***72, 547.9*** | ***73, 827.0*** | ***76, 046.8*** | ***80, 145.3*** | ***8, 5147.4*** | ***90, 366.3*** |

Table 4.3.D (continued)
**Indonesia : Gross Domestic Product By Expenditure Sector**
(billion rupiahs: constant prices)

| | 1990 | 1991 | 1992 | 1993 |
|---|---|---|---|---|
| Private Consumption | 62, 053.2 | 66, 584.0 | 68, 484.5 | 72,476.20 |
| Government Consumption | 11, 317.3 | 12, 112.7 | 12 819.0 | 12, 829.7 |
| Gross domestic fixed capital formation | 32, 731.5 | 34, 867.2 | 36, 589.4 | 38,671.20 |
| Change in stock* | 3,302.80 | 1,989.60 | 2,314.20 | 3,403.70 |
| Export of goods and services | 28, 862.8 | 34,600.80 | 39,674.80 | 42,296.80 |
| *less* Imports of goods and services | 23, 050.3 | 26, 929.1 | 28,697.00 | 29,970.50 |
| **Gross Domestic Product** | ***115, 217.3*** | ***123, 225.2*** | ***131, 181.9*** | ***139, 707.1*** |
| Net factor income from abroad | -4,231.00 | -4,435.60 | -4,955.70 | -6,154.10 |
| **Gross National Product** | ***110, 986.3*** | ***118, 789.6*** | ***126, 229.2*** | ***133, 553.0*** |
| *less* Net indirect taxes | 8,112.50 | 8,123.60 | 8,945.60 | 9,621.00 |
| *less* Depreciation | 5,642.90 | 6,161.60 | 6,557.80 | 6,981.40 |
| **National Income** | ***97, 230.9*** | ***104, 504.4*** | ***110, 725.8*** | ***116, 950.6*** |

*Notes* : 1960-1973 based on 1960 prices; 1973-1983 based on 1973 prices; 1983-1992 based on 1983 prices

**Source**: National Income of Indonesia Publication, Indonesia's Central Bureau of Statistics, various issues

## 4.3. Adjustment Performances

### 4.3.1. Growth and Structure of Production

The effect of the adjustment programs can be seen from some main macro economic indicators such as economic growth, balance of payments, monetary development, fiscal performance, and inflation.

Although economic growth slowed significantly over the period, 1981-86, averaging 4.4 percent per year, it remained positive in percapita terms. Given the severity of external shocks, sustaining a reasonable annual expansion of the overall economy and more than 5 percent annual growth in the non oil economy while at the same time reducing financial imbalance is a notable performance. Non-oil exports, especially manufactured exports, emerged as a new source of growth, while other sectors such as oil earnings and import substituting manufacturing - the prime movers of the rapid growth of the 1970s-weakened during that period. See Table 4.4, Table 4.9 and Table 4.13.

Table 4.4
Overall and GDP sectoral performance
(annual real growth rate)
1973-1992

| | 1973-1981 | 1981-1986 | 1986-1992 |
|---|---|---|---|
| GDP | 7.5 | 4.4 | 6.3 |
| Non-oil GDP | 8.0 | 5.4 | 7.1 |
| Agriculture | 3.4 | 3.7 | 2.9 |
| Manufacturing* | 14.1 | 6.3 | 10.3 |
| Services | 10.0 | 6.0 | 7.6 |
| GDP percapita | 5.2 | 2.6 | 4.5 |

*. Excludes liquefied natural gas and oil
*Source* : Calculated from Indonesia's Central Bureau of Statistics Publications

In the period of 1986-1992, economic growth and non oil GDP had revived almost to the level of annual growth of 1973-1981 (See

Table 4.4). All sectors, except the agriculture sector, had jumped significantly. The lower growth of the agriculture sector reflects the transforming process to industrialization.

Table 4.5.
Impact of Adjustment Policies
1973-1992

| | Annual growth rate (%) | | | Share of GDP (%) | | |
|---|---|---|---|---|---|---|
| | 1973-1981 | 1981-1986 | 1986-1992 | 1973 | 1986 | 1992 |
| Terms of trade | 1.6 | -1 | -1 | - | - | - |
| National income | 7.2 | 3.0 | 6.5 | 85 | 84 | 84 |
| Consumption | 10.2 | 3.6 | 5.4 | 56 | 66 | 62.6 |
| -Public cons. | 10.9 | 4.1 | 5.6 | 8.1 | 10.3 | 9.8 |
| -Private cons. | 10.1 | 3.6 | 5.4 | 48.1 | 56.1 | 53.0 |
| Investment | 13.0 | 6.0 | 9.0 | 14.7 | 21.9 | 27.8 |
| -Public invest. | 17.0 | 5.0 | 2.3 | 3.7 | 7.3 | 5.9 |
| -Private invest. | 11.4 | 7.0 | 11.0 | 10.9 | 14.6 | 21.8 |
| Percapita nat.income | 4.8 | 1.2 | 4.7 | - | - | - |
| Percapita private cons. | 7.7 | 1.8 | 3.2 | - | - | - |

*Source* : Calculated from Indonesia Central Bureau of Statistics Publication.

As the terms of trade deteriorated during 1981-86, domestic income was also adversely affected. During 1981-86, national income grew only 3.0 percent per annum. The lower growth of national income had cut consumption significantly, especially in the private sector, although it still grew faster than national income. Meanwhile, the rate of growth of public investment over the period 1981-1986 and 1986-1992 kept falling steadily (Table 4.5). This was due to a large reduction in budget financed capital spending and in line with the spirit of deregulation where private investment should play a more important role. Private sector investment declined in the first few years of the adjustment period, but since 1986 private investment has been recovering and as a proportion of GDP kept increasing significantly,

resulting from a better climate for investment brought about by adjustment programs.

As the economy grew rapidly, the sectoral structure also changed considerably. The agriculture sector still contributed dominantly to the remarkable Indonesian economic performance, but its share (in real term) in composition of GDP declined from 52 percent in 1965 to 22 percent in 1986 and dropped to 18.5 in 1992 (Table 4.3A and 4.3B). It is worth noting that this development cannot be interpreted as reflecting an adverse growth of agriculture, but rather the growth rate of agriculture was lower than that of the manufacturing and services sectors. Indeed, the agricultural sector grew rapidly (in real term) at 4.3 percent per annum over the period 1965-1980, and continued at a slightly lower of 3 percent during 1980-1986 (calculated as an average from different base years in Table 4.3A and Table 4.3B). The improved government financial position until 1981, mainly due to an increase in the output of mining sectors and foreign borrowing, enabled the government to allocate considerable resources to the agricultural sector. The rapid growth of the agricultural sector, to some extent, was due to the intensive use of fertilizers which were subsidized by the government, considerable funds for research and development in agriculture, and the expansion of the cultivated land through rehabilitation of the irrigation system and other infrastructures.

Despite the rapid growth of agricultural output, there has been considerable movement in the labor force from the agricultural sector to other sectors such as construction and manufacturing. The agricultural share of the labor force fell down from 71 percent in 1965 to 57 percent in 1980 *(World Development Report* 1988, Table 31).

Although the manufacturing sector in real term grew rapidly, at 12 percent during 1965-1980 and slowed to 7.7 percent during 1980-1986, its share in the composition of GDP rose significantly from 8 percent in 1965 to 16 percent in 1986, ranked third after agricultural and mining shares (Table 4.3 A and 4.3.B). The rapid growth of the manufacturing sector during 1973-80 was mainly due to increased investment in capital equipment and rapid technology, which was made possible by the abundant supply of foreign exchange particularly during the oil boom period. Also worth mentioning, is the services sector which also exhibited a high growth rate, reaching 9.7 percent per annum during 1973-80 and 5.6 percent during 1980-86. The slow growth of all sectors during 1980-86 was mostly attributable to the sharp decline in the world oil price, limiting the supply of foreign exchange to finance imports of capital equipment and intermediate goods; but it was also due to the shrinking expenditure especially of the government that dampened the growth of demand.

It is generally acknowledged that the remarkable progress of Indonesian economic performance during the last two decades was due mostly to the fortunate oil boom during 1970s, and partly to the sound macroeconomic policies directed toward the utilization of oil/LNG revenue to strengthen not only the tradable sector but also the non-tradable sector. This is connected with the success of Indonesia in averting *"the Dutch disease"*.

Despite the facts, Indonesia like most oil exporting countries, suffered much from the sharp decline of oil prices. However, it still enjoyed a positive annual real rate of growth at 4.3 percent during 1980-86, while other oil exporting countries such as Nigeria and Venezuela

were having negative rate of growth, and Mexico only increased by 0.4 percent. As compared to the growth rate of developing countries, the latter during the same period, was on average only 1.8 per annum (*World Development Report* 1988, Table 2).

### 4.3.2. Savings-Investment Balance

As a result of economic growth, Indonesia has also been able to increase the level of its consumption over time. Nevertheless, domestic capital formation and savings are also growing with faster rates than the rate of growth in consumption.

During the 1970s, the savings rate in Indonesia was high and rising, being mainly propped up by the increase in oil prices. With the decline of oil revenue, the gross domestic savings rate declined sharply. The savings rate declined sharply from 22% of GDP in 1981 to around 18% in 1986, before gradually recovering to about 22% in 1989. On average, the rate of savings and rate of investments, as a percentage of GDP, during 1981-92 were considerably higher than during 1971-1980 and compared to most developing countries. Nevertheless, a rate of savings of around 24 percent is still considered relatively sufficient compared to other developing countries (Table 4.6).

The decline in the savings rate in 1986 can be attributed mostly to a decline in savings in the public sector from about 10% of GDP in the early 1980s to about 5% in 1986, before recovering to 6.5% in the 1990s. This was largely a consequence of the decline in government revenues following a slump in oil prices, especially in 1986. The private national savings rate which declined from about 16% in 1981 to an

average of 14% during 1982-86, has also recovered to over 17% of GDP since then.

Table 4.6
Savings-Investment Balance
(trillion rupiahs, current prices)
1971-1992

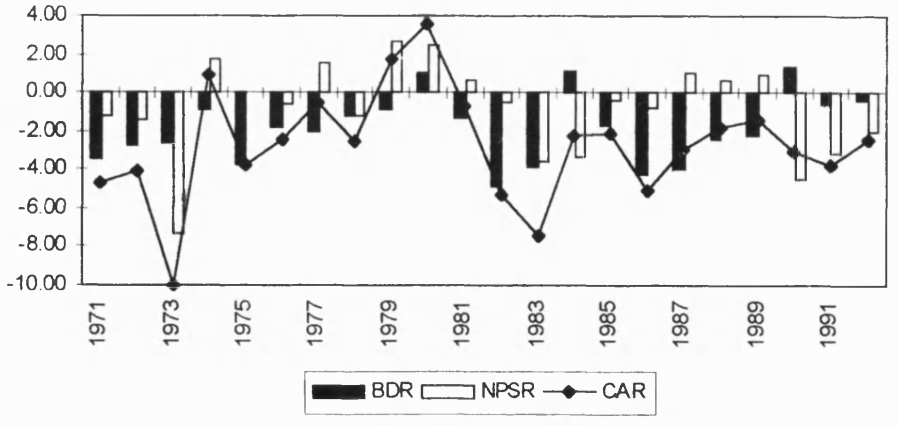
| | GS | GI | BD | PS | PI | NPS | CA | GDP |
|---|---|---|---|---|---|---|---|---|
| 1971 | 0.011 | 0.144 | -0.133 | 0.405 | 0.451 | -0.046 | -0.179 | 3.8 |
| 1972 | 0.077 | 0.207 | -0.13 | 0.607 | 0.673 | -0.066 | -0.196 | 4.8 |
| 1973 | 0.125 | 0.313 | -0.188 | 0.405 | 0.926 | -0.521 | -0.709 | 7.1 |
| 1974 | 0.5 | 0.6 | -0.1 | 1.4 | 1.2 | 0.2 | 0.1 | 11.3 |
| 1975 | 0.5 | 1 | -0.5 | 1.7 | 1.7 | 0 | -0.5 | 13.3 |
| 1976 | 1.2 | 1.5 | -0.3 | 1.7 | 1.8 | -0.1 | -0.4 | 16.3 |
| 1977 | 1.4 | 1.8 | -0.4 | 2.5 | 2.2 | 0.3 | -0.1 | 20 |
| 1978 | 1.6 | 1.9 | -0.3 | 2.6 | 2.9 | -0.3 | -0.6 | 24 |
| 1979 | 2.1 | 2.4 | -0.3 | 5.4 | 4.5 | 0.9 | 0.6 | 33.7 |
| 1980 | 4.8 | 4.3 | 0.5 | 6.6 | 5.4 | 1.2 | 1.7 | 47.9 |
| 1981 | 4.1 | 4.9 | -0.8 | 10 | 9.6 | 0.4 | -0.4 | 61.2 |
| 1982 | 2.5 | 5.7 | -3.2 | 10.2 | 10.5 | -0.3 | -3.5 | 65.8 |
| 1983 | 3.4 | 6.4 | -3 | 10.2 | 13 | -2.8 | -5.8 | 77.6 |
| 1984 | 7.6 | 6.6 | 1 | 10.5 | 13.5 | -3 | -2 | 89.9 |
| 1985 | 6.1 | 7.8 | -1.7 | 14.1 | 14.5 | -0.4 | -2.1 | 97 |
| 1986 | 3.5 | 7.9 | -4.4 | 16.1 | 16.9 | -0.8 | -5.2 | 102.7 |
| 1987 | 3.1 | 8.1 | -5 | 24.2 | 22.9 | 1.3 | -3.7 | 124.8 |
| 1988 | 4.6 | 8.1 | -3.5 | 29.6 | 28.7 | 0.9 | -2.6 | 142.1 |
| 1989 | 5.7 | 9.5 | -3.8 | 37.7 | 36.2 | 1.5 | -2.3 | 167.2 |
| 1990 | 15.4 | 12.7 | 2.7 | 34.2 | 42.9 | -8.7 | -6 | 195.6 |
| 1991 | 13.5 | 14.9 | -1.4 | 43.6 | 50.7 | -7.1 | -8.5 | 227.5 |
| 1992 | 15 | 15.9 | -0.9 | 52.8 | 58.2 | -5.4 | -6.3 | 260.8 |
| | | | | % of GDP | | | | |
| | GS | GI | BD | PS | PI | NPS | CA | |
| 1971 | 0.29 | 3.79 | -3.50 | 10.66 | 11.87 | -1.21 | -4.71 | |
| 1972 | 1.60 | 4.31 | -2.71 | 12.65 | 14.02 | -1.38 | -4.08 | |
| 1973 | 1.76 | 4.41 | -2.65 | 5.70 | 13.04 | -7.34 | -9.99 | |
| 1974 | 4.42 | 5.31 | -0.88 | 12.39 | 10.62 | 1.77 | 0.88 | |
| 1975 | 3.76 | 7.52 | -3.76 | 12.78 | 12.78 | 0.00 | -3.76 | |
| 1976 | 7.36 | 9.20 | -1.84 | 10.43 | 11.04 | -0.61 | -2.45 | |
| 1977 | 7.00 | 9.00 | -2.00 | 12.50 | 11.00 | 1.50 | -0.50 | |
| 1978 | 6.67 | 7.92 | -1.25 | 10.83 | 12.08 | -1.25 | -2.50 | |
| 1979 | 6.23 | 7.12 | -0.89 | 16.02 | 13.35 | 2.67 | 1.78 | |
| 1980 | 10.02 | 8.98 | 1.04 | 13.78 | 11.27 | 2.51 | 3.55 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1981 | 6.70 | 8.01 | -1.31 | 16.34 | 15.69 | 0.65 | -0.65 |
| 1982 | 3.80 | 8.66 | -4.86 | 15.50 | 15.96 | -0.46 | -5.32 |
| 1983 | 4.38 | 8.25 | -3.87 | 13.14 | 16.75 | -3.61 | -7.47 |
| 1984 | 8.45 | 7.34 | 1.11 | 11.68 | 15.02 | -3.34 | -2.22 |
| 1985 | 6.29 | 8.04 | -1.75 | 14.54 | 14.95 | -0.41 | -2.16 |
| 1986 | 3.41 | 7.69 | -4.28 | 15.68 | 16.46 | -0.78 | -5.06 |
| 1987 | 2.48 | 6.49 | -4.01 | 19.39 | 18.35 | 1.04 | -2.96 |
| 1988 | 3.24 | 5.70 | -2.46 | 20.83 | 20.20 | 0.63 | -1.83 |
| 1989 | 3.41 | 5.68 | -2.27 | 22.55 | 21.65 | 0.90 | -1.38 |
| 1990 | 7.87 | 6.49 | 1.38 | 17.48 | 21.93 | -4.45 | -3.07 |
| 1991 | 5.93 | 6.55 | -0.62 | 19.16 | 22.29 | -3.12 | -3.74 |
| 1992 | 5.75 | 6.10 | -0.35 | 20.25 | 22.32 | -2.07 | -2.42 |

*Notes*: GS = government savings
GI = government investment
BD = budget deficit
PS = private savings
PI = private investment
NPS = net private savings
CA = current account
GDP = gross domestic product

*Source*: Calculated from Flow of Funds data, Bank Indonesia.

Figure 4.1.
Budget Deficit Ratio (BDR),
Net Private Savings Ratio (NPSR) and
Current Account Ratio (CAR)
(% of GDP)




The rate of investment reached an average of 24% of GDP per annum during 1981 -86 and increased to an average of 27% during 1987-1992. In the 1970s until 1980 the investment rate was on average

20% of GDP. This ratio of investment is actually relatively high for a developing country. Throughout 1971-73 there was a rather sizable saving-investment gap of about 6 percent per annum due to large investment expenditures in both sectors. In the rest of the period except in 1982, 1983 and 1986, marking the oil price fall, the savings-investment gap reflecting the current account deficit turn to decrease to 2-3 % of GDP. In contrast, in 1974, and during 1979-80 there was a surplus of savings of 1 to 3%. The above mentioned gap reflected the shortfall in savings compared to the investment, so that it had to be closed by foreign sources of funds - be they loans or grants.

With no longer much hope on oil price increases in the future, government savings by and large depend on the success of tax mobilization (non-oil and LNG proceeds) and austerity program adopted on the government expenditures. And in the face of this, tax reforms have become such an unavoidable measure to cope with.

Private savings have been continuously increasing. This can be seen from the development of many savings mobilization schemes introduced by the banking systems as we will see later. This development is tied to the relatively high interest rates offered by the banks for deposits. The problem is how these private savings, thus far in the hands of financial institutions, can be channeled - directly and indirectly - towards productive investments in the real sectors. This issue must also be seen in relation to the general policy creating and maintaining a conducive atmosphere for investment.

In the saving-investments-income chain, attention should also be directed towards the effective use of investment capital. Data showed

that investment between 1984-1992 hovered on average around 26 percent of GNP per annum. On the other hand, the rate of production growth averaged about 5 percent per annum. This means that the ratio between capital investments (26 percent) and the proceeds of those investments (5 percent) was about 5-6 percent. In other words, the ICOR (Incremental Capital Output Ratio) was very high. It is much higher compared to the development in any other ASEAN countries. Such a high ICOR rate reflects the low efficiency in the economic system.

### 4.3.3. Public Sector

When the present regime, known as the 'new order' came to power in 1966, it inherited a virtually bankrupt nation with a collapsed economy and with an external debt mounting to US$2.5 billion. This was mainly caused by economic mismanagement: the continuing monetary expansion to finance a prolonged budget deficit. The first step of the new government's economic stabilization and rehabilitation program, therefore, was to eliminate the budget deficit. One major landmark in the fiscal sector was the adoption of a balanced budget policy

The Indonesian government's presentation of budgetary accounts does not provide any measures from which we can work out the impact of budget on aggregate demand. The Indonesian budget, running from the beginning of April to the end of March in the following year, has always been in balance, and the realized budget balance has also been close to zero. The explanation for this representation is almost entirely definitional (Please read footnote no. 3 of this chapter). The appearance

of fiscal discipline on the part of government was seen as psychologically important to reestablish confidence in economic management. These techniques of government accounting, from an economic point of view, were accordingly considered inappropriate. Thus while the budget deficit as conventionally defined has practically fluctuated over the years according to the economic conditions, the government has continually adjusted both the revenue and expenditure sides of the accounts to produce a nominally balanced budget.

Depending on how revenues and expenditure are classified, several different concepts can be derived, each of which may be used as an indicator of the impact of budgetary policy depending on the aim of the analysis. There are various concepts of the budgetary deficit. Among others are the overall budget balance, the 'net worth' concept, the domestic deficit[4)] and the 'Indonesian monetary deficit' - a practice which constitutes in a sense a ban on the creation of money to finance government expenditure. (The topic that will be discussed broadly in Chapter Five).

Table 4.7
Share of Various Components of Central Government Revenues
1967 - 1978/9*

| Year | Non Oil Domestic Revenue | | | | Oil tax | Aid receipts | | | Total Revenues |
|---|---|---|---|---|---|---|---|---|---|
| | Direct taxes | Indirect taxes | Non tax | Total | | Programme aid | Project aid and export credits | Total | |
| 1967 | 11 | 50 | 1 | 62 | 9 | 29 | 0 | 29 | 100 |
| 1968 | 14 | 51 | 3 | 67 | 14 | 19 | 0 | 19 | 100 |
| 1969 | 15 | 44 | 1 | 60 | 18 | 22 | 0 | 22 | 100 |
| 1969/70 | 13 | 44 | 1 | 58 | 14 | 20 | 8 | 27 | 100 |
| 1970/71 | 11 | 45 | 3 | 59 | 15 | 17 | 9 | 26 | 100 |
| 1971/72 | 12 | 39 | 5 | 56 | 20 | 16 | 8 | 24 | 100 |
| 1972/73 | 14 | 34 | 5 | 52 | 27 | 13 | 8 | 21 | 100 |
| 1973/74 | 14 | 35 | 4 | 53 | 29 | 8 | 10 | 17 | 100 |
| 1974/75 | 13 | 23 | 3 | 39 | 49 | 2 | 10 | 12 | 100 |
| 1975/76 | 12 | 20 | 4 | 36 | 46 | 1 | 17 | 18 | 100 |
| 1976/77 | 12 | 20 | 3 | 35 | 44 | - | 21 | 21 | 100 |
| 1977/78 | 13 | 20 | 3 | 37 | 45 | 1 | 17 | 18 | 100 |
| 1978/79 | 15 | 22 | 2 | 39 | 43 | 1 | 17 | 18 | 100 |
| 1979/80 | 11 | 17 | 3 | 31 | 53 | - | 16 | 16 | 100 |
| 1980/81 | 10 | 15 | 3 | 28 | 60 | - | 13 | 13 | 100 |
| 1981/82 | 11 | 13 | 2 | 26 | 62 | - | 12 | 12 | 100 |
| 1982/83 | 12 | 14 | 3 | 29 | 57 | - | 13 | 13 | 100 |
| 1983/84 | 12 | 13 | 3 | 28 | 52 | - | 21 | 21 | 100 |

Table (continued)
Share of Various Components of Central Government Revenues
1985/6 - 1992/3

| Year | Non Oil Domestic Revenue | | | | Oil tax | Aid receipts | | | Total Revenues |
|---|---|---|---|---|---|---|---|---|---|
| | Direct taxes | Indirect taxes | Non tax | Total | | Programme aid | Project aid and export credits | Total | |
| 1985/6 | 11 | 18 | 7 | 36 | 49 | 1 | 15 | 16 | 100 |
| 1986/7 | 11 | 28 | 5 | 44 | 29 | 9 | 17 | 26 | 100 |
| 1987/8 | 11 | 21 | 7 | 39 | 37 | 3 | 20 | 23 | 100 |
| 1988/9 | 13 | 23 | 5 | 41 | 29 | 6 | 24 | 30 | 100 |
| 1989/90 | 16 | 24 | 5 | 45 | 30 | 3 | 22 | 25 | 100 |
| 1990/1 | 15 | 25 | 4 | 44 | 36 | 3 | 17 | 20 | 100 |
| 1991/2 | 20 | 26 | 5 | 51 | 29 | 3 | 17 | 20 | 100 |
| 1992/3 | 22 | 28 | 5 | 55 | 26 | - | 17 | 18 | 100 |

*)Total may not add due to rounding
*Source* : Ministry of Finance, *Nota Keuangan dan RAPBN* (Financial Notes and Budget Proposal), various years

The Indonesian government revenue profile as shown in Table 4.7. is dominated by the changing relative importance of the three main aggregates, oil and gas revenues, other domestic revenue (non-oil domestic revenue-NODR), and foreign borrowing. Non oil domestic revenues since 1967 until 1973/74 comprised around 50 to 60% of total revenue, oil and gas revenue contributed 10 to 20% of the total, with the remaining 20 to 30% coming from foreign aid/borrowing. Increasing oil prices since 1974 resulted in significant changes in this proportion. The share of oil revenues had increased from 20% in 1971/2 to more than 50% during the period 1974-1985 (not shown). From 1986 onward the share had fallen to about 30% (See Table 4.7).

Responding to the tax drive in 1983-1984, the central government's non-oil taxes had doubled from 5.66% of GDP in 1983/84 to 11.17% of GDP in 1992/93 (Table 4.8). Measures to control expenditure such as cutting large capital and import intensive investment were also largely successful. Despite the growing burden of external interest payments, which was aggravated by yen appreciation, total expenditure declined from 23.12 percent of GDP in 1983/84 to around 20 percent in 1992/93. As a result of revenue mobilization and expenditure control, the overall budget deficit narrowed from about 4 percent to 1.50 percent of GDP over the same period (Table 4.8).

# Table 4.8.
## Summary of Central Government Operation
(in trillion rupiahs)

| | 1982/83 | 1983/84 | 1984/85 | 1985/86 | 1986/87 | 1987/88 | 1988/89 | 1989/90 | 1990/91 | 1991/92 | 1992/93 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rev. & Grant [a] | 12.49 | 14.54 | 16 | 19.38 | 16.3 | 21.08 | 23.29 | 29.05 | 39.97 | 42 | 48 |
| oil & gas | 8.17 | 9.52 | 10.43 | 11.14 | 6.33 | 10.05 | 9.53 | 11.25 | 17.71 | 15.04 | 15.33 |
| non-oil & gas | 3.81 | 4.39 | 4.79 | 6.62 | 7.65 | 8.78 | 11.91 | 15.43 | 19.71 | 24.06 | 29.13 |
| Expenditure | 15.81 | 17.94 | 15.78 | 22.6 | 21.69 | 22.27 | 27.5 | 30.58 | 35.7 | 43.28 | 51.9 |
| Current | 7.31 | 8.31 | 9.62 | 11.42 | 12.51 | 14.02 | 15.04 | 18.36 | 23.15 | 22.93 | 25.85 |
| Capital [b] | 8.5 | 9.63 | 6.16 | 11.18 | 9.18 | 8.25 | 12.46 | 12.22 | 12.55 | 20.35 | 26.05 |
| Gov't. savings | 5.18 | 6.23 | 6.38 | 7.96 | 3.79 | 7.06 | 8.25 | 10.69 | 16.82 | 19.07 | 22.15 |
| Overall bal. | -3.32 | -3.4 | 0.22 | -3.22 | -5.39 | -1.19 | -4.21 | -1.53 | 4.27 | -1.28 | -3.9 |
| -primary bal. [c]. | -2.7 | -2.28 | 1.71 | -1.52 | -2.4 | 2.25 | 0.19 | 3.29 | 9.3 | 3.28 | 1.49 |
| (int. payment) | (0.62) | (1.12) | (1.49) | (1.7) | (2.99) | (3.44) | (4.4) | (4.82) | (5.03) | (4.56) | (5.39) |
| | | | | | % of GDP | | | | | | |
| Rev. & grant | 18.98 | 18.74 | 17.80 | 19.98 | 15.87 | 16.89 | 16.39 | 17.37 | 20.43 | 18.46 | 18.40 |
| oil & gas | 12.42 | 12.27 | 11.60 | 11.48 | 6.16 | 8.05 | 6.71 | 6.73 | 9.05 | 6.61 | 5.88 |
| non-oil & gas | 5.79 | 5.66 | 5.33 | 6.82 | 7.45 | 7.04 | 8.38 | 9.23 | 10.08 | 10.58 | 11.17 |
| Expenditure | 24.03 | 23.12 | 17.55 | 23.30 | 21.12 | 17.84 | 19.35 | 18.29 | 18.25 | 19.02 | 19.90 |
| Current | 11.11 | 10.71 | 10.70 | 11.77 | 12.18 | 11.23 | 10.58 | 10.98 | 11.84 | 10.08 | 9.91 |
| Capital | 12.92 | 12.41 | 6.85 | 11.53 | 8.94 | 6.61 | 8.77 | 7.31 | 6.42 | 8.95 | 9.99 |
| Gov't. savings | 7.87 | 8.03 | 7.10 | 8.21 | 3.69 | 5.66 | 5.81 | 6.39 | 8.60 | 8.38 | 8.49 |
| Overall bal. | -5.05 | -4.38 | 0.24 | -3.32 | -5.25 | -0.95 | -2.96 | -0.92 | 2.18 | -0.56 | -1.50 |
| -primary bal. | -4.10 | -2.94 | 1.90 | -1.57 | -2.34 | 1.80 | 0.13 | 1.97 | 4.75 | 1.44 | 0.57 |
| *Memo item :* | | | | | | | | | | | |
| Publ. ext. debt | 18.2 | 26 | 25.4 | 31.3 | 50.3 | 49.5 | 48 | 42.2 | 42.7 | 38.4 | 39.5 |

[a] Includes external grants

[b] Derived as the sum of government savings and net financing (external plus domestic)

[c] Overall balance net of external interest payments

*Source*: Calculated from "Financial Note and Budget Proposal", *Ministry of Finance*, and IMF Publication, various issues.

The further fall of oil prices in 1986/87 again increased the fiscal deficit to about 5% of GDP, necessitating renewed restraint. The required adjustment was more stringent than earlier. Both current and capital spending were tightened further, including the freezing of civil service salaries for three years.

Some lessons can be drawn from Indonesian fiscal management:

1. When oil revenues were relatively plentiful, although government expenditure rose, its fiscal stance was less expansionary than other major oil exporters. Large deficits were avoided and external borrowing was less compared to the other oil exporters, which generally opted for highly expansionary policies [5].

2. The use of oil revenues is judicious, emphasizing agriculture and basic physical and social infrastructure and refraining from showy but low-productivity projects [6].

3. The government responded promptly to the need to tighten the fiscal stance as oil revenues fell; the speed of adjustment was swift. The adjustment encompassed both expenditure restraint and revenue mobilization.

4. Expenditures critical to growth and poverty reduction, infrastructure and human resource development were protected as much as possible.

### 4.3.4. External Sector

During the 1970s, in spite of the amount of foreign exchange receipts from oil exports, the current account of Indonesia's balance of payments was still in deficit, cumulatively amounting to US$1,071 million during 1971/72-80/81, though during 1979/1980 and 1980/81 showing surpluses (Table 4.10). The inherited feature from the old regime plus the surge in non-oil imports, explains why a current account deficit continued to be recorded during the first oil boom. The deficit deteriorated even more during the 1980s. The cumulative current account deficit over 1981/82-1992/93 reached more than US$35 billion. The deficit reached its peak in 1982/83, amounting to US$7,039 million or 7.4% of GNP, following the first oil price fall. Some other important explanations for this deficit during the period were the Pertamina (the state oil company) crisis in 1975/76, foreign debt service, world recession during 1974/75 and in the 1980s, and the rapid increase in imports, in response to the high domestic demand for capital and intermediate goods fostered by a considerable increase in government expenditure from year to year.

Due to the lack of management, the state oil company was committed to a huge short-term foreign loan used to accelerate its activities as its international credit worthiness rose in line with the increase in world oil prices. On the other hand, foreign exchange earnings from exports of non-oil merchandise declined slightly due to the world recession during 1974-1975. Although earnings from oil exports continued to increase considerably, total earning from all exports in 1975 only increased slightly, compared to an average of US$2 billion 1973-1980 and US$3 billion during 1986-1992.

Table 4.9
Balance of Payments, 1972-1992
(US$ billion)

| | 1972 | 1974 | 1982 | 1983 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Export** | **1.76** | **6.76** | **19.75** | **18.69** | **14.40** | **17.21** | **19.51** | **22.97** | **26.81** | **29.64** | **33.80** |
| -Oil & LNG | 0.88 | 4.56 | 15.87 | 13.69 | 7.74 | 8.57 | 7.83 | 8.91 | 11.93 | 11.46 | 10.50 |
| -Non-oil | 0.88 | 2.20 | 3.88 | 5.00 | 6.66 | 8.64 | 11.68 | 14.06 | 14.88 | 18.18 | 23.30 |
| **Import** | **-1.45** | **-4.63** | **-17.85** | **-17.73** | **-11.94** | **-12.53** | **-13.83** | **-16.31** | **-21.46** | **-24.83** | **-26.77** |
| -Oil & LNG | -0.17 | -1.20 | -4.43 | -3.83 | -2.18 | -2.22 | -2.10 | -2.41 | -3.23 | -3.37 | -3.36 |
| -Non-oil | -1.28 | -3.43 | -13.42 | -13.90 | -9.76 | -10.31 | -11.73 | -13.90 | -18.23 | -21.46 | -23.41 |
| **Services** | **-0.78** | **-2.10** | **-7.35** | **-7.41** | **-6.56** | **-6.94** | **-7.23** | **-7.99** | **-8.59** | **-9.19** | **-10.14** |
| -Oil & LNG | -0.38 | -1.18 | -3.54 | -3.29 | -2.50 | -2.72 | -2.52 | -2.91 | -3.06 | -3.06 | -3.29 |
| -Non-oil | -0.40 | -0.92 | -3.81 | -4.12 | -4.06 | -4.22 | -4.71 | -5.08 | -5.53 | -6.13 | -6.85 |
| **Current acc. bal.** | **-0.47** | **0.03** | **-5.46** | **-6.44** | **-4.10** | **-2.27** | **-1.55** | **-1.28** | **-3.24** | **-4.39** | **-3.12** |
| -Oil & LNG | 0.33 | 2.18 | 7.90 | 6.57 | 3.06 | 3.63 | 3.21 | 3.59 | 5.64 | 5.03 | 3.85 |
| -Non-oil | -0.80 | -2.15 | -13.35 | -13.02 | -7.16 | -5.89 | -4.76 | -4.92 | -8.88 | -9.41 | -6.96 |
| **Current acc. bal.** | **-0.47** | **0.03** | **-5.46** | **-6.44** | **-4.10** | **-2.27** | **-1.55** | **-1.28** | **-3.24** | **-4.39** | **-3.12** |
| Off.cap.infl.(net) | 0.40 | 0.60 | 4.10 | 4.80 | 3.10 | 2.10 | 2.00 | 2.80 | 0.60 | 1.40 | 1.10 |
| Priv.cap.infl.(net) | 0.40 | 0.40 | 1.60 | 1.80 | 1.30 | 1.50 | 0.40 | 0.30 | 4.10 | 4.40 | 5.40 |
| Monet mov. | -0.40 | -0.70 | 1.90 | -0.70 | 0.50 | -1.20 | 0.30 | -0.40 | -2.10 | -1.20 | -1.70 |
| Error & omission | 0.10 | -0.30 | -2.20 | 0.50 | -0.80 | -0.20 | -1.10 | -1.40 | 0.60 | -0.20 | -1.60 |
| | | | | | | | | | | | |
| **Current acct./GNP** | -4.26 | 0.00 | -5.63 | -7.94 | -5.38 | -3.11 | -1.92 | -1.45 | -3.23 | -3.97 | -2.54 |
| Non int. curr. acct./GNP | -3.36 | 0.85 | -4.04 | -5.95 | -2.23 | 0.46 | 1.75 | 1.99 | -0.10 | -0.82 | 0.31 |
| Debt Service ratio | 5.4 | 2 | 9.6 | 10.5 | 27.4 | 27.1 | 28.9 | 23.7 | 21.8 | 20.6 | 19.4 |
| Official reserve | 0.5 | 1.5 | 4.2 | 4.8 | 5.3 | 6.5 | 6.2 | 6.6 | 8.7 | 9.9 | 11.6 |
| -Eq. of month of non oil/gas imp. | 4.3 | 2.7 | 2.3 | 4.3 | 5.9 | 6.8 | 5.7 | 5.1 | 5.1 | 5 | 5.3 |

Source : Calculated from "*Balance of Payments Statistics Publication*", Bank Indonesia.

Table 4.10.
Balance of Payments, 1971/72-1992/93

| Fiscal Year | Current account mill. US$ | Net factor income (NFI); mill. US$ | Trade balance &service mill. US$ | Service (non.NFI); mill. US$ | Trade balance (in kind) milli. US$ | Nominal Exchange Rate ; Rp/US$ | Current account trill. Rp | Net factor income (NFI); trill. Rp |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1971/72 | -448.00 | -228.00 | -220.00 | -346 | 126.00 | 405.75 | -0.182 | -0.093 |
| 1972/73 | -557.00 | -443.00 | -114.00 | -402 | 288.00 | 415.00 | -0.231 | -0.184 |
| 1973/74 | -756.00 | -712.00 | -44.00 | -583 | 539.00 | 415.00 | -0.314 | -0.295 |
| 1974/75 | -138.00 | -1,256.00 | 1,118.00 | -971 | 2,089.00 | 415.00 | -0.057 | -0.521 |
| 1975/76 | -854.00 | -1,268.00 | 414.00 | -1,323 | 1,737.00 | 415.00 | -0.354 | -0.526 |
| 1976/77 | -802.00 | -1,249.00 | 447.00 | -1,593 | 2,040.00 | 415.00 | -0.333 | -0.518 |
| 1977/78 | -690.00 | -1,826.00 | 1,136.00 | -1,858 | 2,994.00 | 415.00 | -0.286 | -0.758 |
| 1978/79 | -1,155.00 | -1,925.00 | 770.00 | -2,140 | 2,910.00 | 491.88 | -0.568 | -0.947 |
| 1979/80 | 2,198.00 | -2,678.00 | 4,876.00 | -2,913 | 7,789.00 | 626.57 | 1.377 | -1.678 |
| 1980/81 | 2,131.00 | -2,943.00 | 5,074.00 | -3,569 | 8,643.00 | 626.98 | 1.336 | -1.845 |
| 1981/82 | -2,790.00 | -2,996.00 | 206.00 | -4,877 | 5,083.00 | 636.50 | -1.776 | -1.907 |
| 1982/83 | -7,039.00 | -3,130.00 | -3,909.00 | -4,085 | 176.00 | 674.10 | -4.745 | -2.110 |
| 1983/84 | -4,151.00 | -3,934.00 | -217.00 | -3,729 | 3,512.00 | 983.38 | -4.082 | -3.869 |
| 1984/85 | -1,968.00 | -3,698.00 | 1,730.00 | -3,744 | 5,474.00 | 1,049.45 | -2.065 | -3.881 |
| 1985/86 | -1,832.00 | -3,814.00 | 1,982.00 | -4,078 | 6,060.00 | 1,146.45 | -2.100 | -4.373 |
| 1986/87 | -4,051.00 | -3,153.00 | -898.00 | -3,144 | 2,246.00 | 1,410.60 | -5.714 | -4.448 |
| 1987/88 | -1,707.00 | -3,825.00 | 2,118.00 | -3,273 | 5,391.00 | 1,649.00 | -2.815 | -6.307 |
| 1988/89 | -1,859.00 | -4,198.00 | 2,339.00 | -3,174 | 5,513.00 | 1,706.53 | -3.172 | -7.164 |
| 1989/90 | -1,599.00 | -4,612.00 | 3,013.00 | -3,443 | 6,456.00 | 1,707.23 | -2.730 | -7.874 |
| 1990/91 | -3,741.00 | -5,392.00 | 1,651.00 | -3,464 | 5,115.00 | 1,868.95 | -6.992 | -10.077 |
| 1991/92 | -4,352.00 | -5,579.00 | 1,227.00 | -3,684 | 4,911.00 | 1,973.85 | -8.590 | -11.012 |
| 1992/93 | -2,561.00 | -5,887.00 | 3,326.00 | -4,660 | 7,986.00 | 2,046.70 | -5.242 | -12.049 |

Table 4.10. (continued)
Balance of Payments, 1971/72-1992/93

| Fiscal Year | Trade balance & service trill. Rp | Service (non.NFI) trill. Rp | Trade balance trill. Rp | Export Oil & Gas (excl. serv.) mill. US$ | Import Oil & Gas (excl. serv.) mill. US$ | Net Export Oil & Gas (excl. serv) mill.US$ | Net Export Oil & Gas (excl. serv) trill. Rp | Net Export Non Oil & Gas (Excl. serv.) trill. Rp |
|---|---|---|---|---|---|---|---|---|
| | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 1971/72 | -0.089 | -0.140 | 0.051 | 590 | 132 | 458 | 0.186 | -0.135 |
| 1972/73 | -0.047 | -0.167 | 0.120 | 965 | 159 | 806 | 0.334 | -0.215 |
| 1973/74 | -0.018 | -0.242 | 0.224 | 1,708 | 461 | 1,247 | 0.518 | -0.294 |
| 1974/75 | 0.464 | -0.403 | 0.867 | 5,153 | 1,275 | 3,878 | 1.609 | -0.742 |
| 1975/76 | 0.172 | -0.549 | 0.721 | 5,273 | 930 | 4,343 | 1.802 | -1.081 |
| 1976/77 | 0.186 | -0.661 | 0.847 | 6,350 | 1,753 | 4,597 | 1.908 | -1.061 |
| 1977/78 | 0.471 | -0.771 | 1.243 | 7,353 | 1,490 | 5,863 | 2.433 | -1.191 |
| 1978/79 | 0.379 | -1.053 | 1.431 | 7,374 | 1,711 | 5,663 | 2.786 | -1.354 |
| 1979/80 | 3.055 | -1.825 | 4.880 | 12,340 | 2,672 | 9,668 | 6.058 | -1.177 |
| 1980/81 | 3.181 | -2.238 | 5.419 | 17,298 | 3,681 | 13,617 | 8.538 | -3.119 |
| 1981/82 | 0.131 | -3.104 | 3.235 | 18,824 | 4,916 | 13,908 | 8.852 | -5.617 |
| 1982/83 | -2.635 | -2.754 | 0.119 | 14,744 | 4,365 | 10,379 | 6.996 | -6.878 |
| 1983/84 | -0.213 | -3.667 | 3.454 | 14,449 | 3,489 | 10,960 | 10.778 | -7.324 |
| 1984/85 | 1.816 | -3.929 | 5.745 | 13,994 | 2,797 | 11,197 | 11.751 | -6.006 |
| 1985/86 | 2.272 | -4.675 | 6.947 | 12,437 | 2,474 | 9,963 | 11.422 | -4.475 |
| 1986/87 | -1.267 | -4.435 | 3.168 | 6,966 | 2,095 | 4,871 | 6.871 | -3.703 |
| 1987/88 | 3.493 | -5.397 | 8.890 | 8,841 | 2,355 | 6,486 | 10.695 | -1.806 |
| 1988/89 | 3.992 | -5.417 | 9.408 | 7,640 | 2,072 | 5,568 | 9.502 | -0.094 |
| 1989/90 | 5.144 | -5.878 | 11.022 | 9,337 | 2,529 | 6,808 | 11.623 | -0.601 |
| 1990/91 | 3.086 | -6.474 | 9.560 | 12,763 | 3,580 | 9,183 | 17.163 | -7.603 |
| 1991/92 | 2.422 | -7.272 | 9.694 | 10,706 | 3,143 | 7,563 | 14.928 | -5.235 |
| 1992/93 | 6.807 | -9.538 | 16.345 | 10,480 | 3,566 | 6,914 | 14.151 | 2.194 |

*Source:* Calculated from "*Indonesian Balance of Payment Statistics*" Bank Indonesia.

The sudden increase in oil price in 1979, the devaluation of late 1978 and fiscal caution in the wake of the Pertamina, all combined to produce the regime's first current account surpluses in 1979 and 1980 mentioned above.

An increase in imports from the early 1970s until 1983 was in response to the high domestic demand for capital and intermediate goods. After 1983, imports of non oil merchandise fell, but payments for services continued to rise throughout the following years. An important part of the rise in service payments was the payment of interest on external debt.

On the other hand, receipts from all exports already declined after 1981. Although exports of non-oil merchandise have tended to grow since 1983, the sharp decline in the oil prices especially in 1986 severely reduced total earnings from exports. The overall result was a massive increase in the country's current account deficit during 1986-1987. The deficit declined sharply in 1987, but still remained about US$2 billion annually, and started to jump again in 1991, reaching almost US$4 billion or 4% of GNP. Splitting the current account into oil and non-oil, the non-oil current account has always been in deficit.

The effect of the adjustment programs on the balance of payments is summarized in Table 4.9. and Table 4.10. The current account deficit, following a surge to 7.9 percent of GNP in 1983, fell to around 2.4 percent in 1984/85 and 1985/86. The collapse of oil prices in 1986 again led to a sharp deterioration in the balance of payments, with the current account deficit climbing to 5.4 percent of GNP in 1986. Subsequently, the adjustment measures succeeded in lowering the deficit to about 3 percent of GNP in 1987-92, and in 1989 the current account deficit fell to the lowest level of 1.45% of GNP. However the interest payments were on the

increase, so that non-interest current account showed only little improvements.

Given the large loss of foreign exchange earnings caused by external shocks, the ability to reduce the current account deficit below the pre-shock level of 1982 is evidence of the success of the adjustment programs in reducing the external imbalance.

In the initial phase of the adjustment period (1983-85), expenditure switching policy was primarily focused on a reduction of imports through redefining Government priorities, rephasing of large projects, a large depreciation of the real exchange rate (1983), the proliferation of non-tariff barriers, and an increase in the import-substitution activities brought about by strong public investment. The details of the implementation of these policies have been discussed in the previous chapter.

Table 4.11.
Index of Real Growth Rate of Non-oil Export and Total Import of Goods
1974-1992

| Year | Non Oil Exports | % increase | Total import of goods | % increase |
|---|---|---|---|---|
| 1974 | 100 | - | 100 | - |
| 1975 | 97.3 | -2.7 | 114.2 | 14.2 |
| 1976 | 111.21 | 14.3 | 126.31 | 10.6 |
| 1977 | 118.44 | 6.5 | 132.49 | 4.9 |
| 1978 | 117.14 | -1.1 | 139.78 | 5.5 |
| 1979 | 123.23 | 5.2 | 149.57 | 7 |
| 1980 | 120.02 | -2.6 | 194.44 | 30 |
| 1981 | 89.42 | -25.5 | 222.43 | 14.4 |
| 1982 | 79.31 | -11.3 | 281.16 | 26.4 |
| 1983 | 100.49 | 26.7 | 310.12 | 10.3 |
| 1984 | 116.67 | 16.1 | 262.98 | -15.2 |
| 1985 | 125.19 | 7.3 | 199.86 | -24 |
| 1986 | 142.21 | 13.6 | 222.45 | 11.3 |
| 1987 | 183.17 | 28.8 | 268.72 | 20.8 |
| 1988 | 233.35 | 27.4 | 284.30 | 5.8 |
| 1989 | 270.22 | 15.8 | 339.74 | 19.5 |
| 1990 | 304.81 | 12.8 | 439.97 | 29.5 |
| 1991 | 387.11 | 27 | 524.00 | 19.1 |
| 1992 | 492.41 | 27.2 | 556.49 | 6.2 |
| Annual growth rate | | | | |
| 1975-83 | - | 4 | - | 13 |
| 1983-85 | - | 14 | - | -20 |
| 1986-92 | - | 23 | - | 16.5 |

*Source:* Calculated from various Indonesia's Statistical Office Bureau Publications, various issues.

Most of the adjustment in the second phase (1986-1992) was derived from the rapid growth in non-oil exports: by 23% annually in real terms between 1986 and 1992 (Table 4.11), and their share in total merchandise exports increased from 20% in 1982 to 50% in 1987 and reached 70% in 1992 (Table 4.9.). In contrast to the first adjustment period, non-oil imports also expanded in real terms.

Looking at the components of the balance of payments, as in most other rapidly growing economies, the structure of Indonesia's international trade had changed drastically during the last two decades. In 1967, the share of consumer goods in total imports was quite high, 35.8 percent; while that of intermediate goods (raw materials and auxiliary goods) and capital goods was 36.6 percent and 27.6 percent, respectively (See Table 4.12). During 1980-1986, this composition changed drastically; the share of consumer goods in total imports dropped to 6.3 percent, while the share of intermediate goods rose to 76.4 percent, and the share of capital goods slightly declined to 17.3 percent. The pattern significantly changed during 1987-1992, where import of capital goods had increased more than 7 percentage points over the 1980-1986 level. Meanwhile imports of raw materials and consumer good, conversely decreased. The significant decline in import of consumer goods and the increase in the intermediate goods was due to the rapid growth of import substitution industries especially during the 1970s that essentially used imported raw materials. While in the latter period the significant rate of growth in capital goods was in line with the government's effort to keep pace with industrialization.

In the meantime, exports had also changed considerably. As can be seen in Table 4.13 and 4.14, since 1974 exports have been dominated by hydrocarbons, first by oil exclusively and more recently by oil and gas.

Table 4.12.
Imports by Economic Category (percent)
1967-1992

| Year | Capital goods | Raw materials | Consumers goods |
|---|---|---|---|
| 1967 | 27.6 | 36.6 | 35.8 |
| 1975 | 20.0 | 68.0 | 12.0 |
| 1976 | 23.7 | 59.8 | 16.5 |
| 1977 | 20.1 | 61.1 | 18.8 |
| 1978 | 15.5 | 67.4 | 17.2 |
| 1979 | 15.7 | 68.8 | 15.5 |
| 1980 | 13.7 | 73.2 | 13.0 |
| 1981 | 15.2 | 78.7 | 6.0 |
| 1982 | 18.0 | 74.7 | 7.3 |
| 1983 | 17.7 | 71.8 | 10.6 |
| 1984 | 18.5 | 75.5 | 6.0 |
| 1985 | 16.8 | 79.5 | 2.7 |
| 1986 | 17.4 | 78.4 | 4.0 |
| 1987 | 19.7 | 76.6 | 3.7 |
| 1988 | 19.3 | 77.2 | 3.5 |
| 1989 | 23.0 | 72.8 | 4.2 |
| 1990 | 27.8 | 68.2 | 4.0 |
| 1991 | 27.8 | 68.2 | 4.0 |
| 1992 | 27.0 | 68.5 | 4.5 |
| Average | | | |
| 1975-80 | 18.1 | 66.4 | 15.5 |
| 1980-86 | 17.3 | 76.4 | 6.3 |
| 1987-92 | 24.1 | 72.0 | 3.9 |

*Source*: Central Bureau of Statistics, *Indikator Ekonomi*, various issues

During the period of the first "Five Year Development Plan (1969/1970-1973/1974)", the share of oil in total earnings from exports was only about 30 percent, but from 1974 until 1985 oil/ gas revenues never accounted for less than 50 percent of all export earnings and in 1992 dropped again to about 30%. The share of net oil/gas in total exports fluctuated considerably because of large variations in the price of oil. The largest share of net oil/gas was 77 percent in 1981, during which the price of oil reached its peak at US $35 US per barrel, and since 1986 the share of net oil/gas has declined to below 50 percent, due to the drastic fall in the oil price to only about US $10 US per barrel in August 1986. Although the oil price rose afterwards, but it was only as high as half the price in 1981.

Meanwhile the impact of non-oil exports on the balance of payments adjustment during the initial years is relatively small. This is partly due to the small non oil export base at the start of the adjustment program. In 1983, for example, the share of non-oil exports in total exports of goods was only 26%. The expansion of non-oil exports was especially encouraging during 1986-92, the second phase of adjustment, when they grew by an average of about 23 percent annually in real terms (Table 4.11). In 1989 the share of non oil exports in total exports had increased to 61 percent (Table 4.9). The structure of exports of non-oil merchandise also changed drastically, though primary products were still dominant. Table 4.13. presents major group commodities, accounting for more 50 percent of all non-oil exports. Timber (logs, plywood, sawn timber, and others) was the leading source of export earnings, followed by rubber, during 1973-80. On average during 1973-80, the share of timber was 13.1 percent of total exports and 31.6 percent of all non-oil exports; but it declined to 8.1 percent of total exports during 1980-87. An important reason for this sharp decline

was due to the imposition of the export ban on logs since 1981, aiming at reducing export of primary goods and encouraging the growth of manufacturing industries in wood products that mostly employ domestic raw materials. After that year, investments in plywood industries grew rapidly; and the result was a more than doubled export of timber products, increasing from US $948 million (5 percent of total exports in 1981) to US $ 2.2 billion (15 percent of total exports in 1987). Rubber continued to be significant in the non-oil exports, though its share in total exports declined from 8.2 percent over the period 1973 - 80 to 5.1 percent during 1981-87.

Export of manufacturers was relatively insignificant in the earlier period, accounting for only about 3 percent of total exports during 1973-80. But in the recent period, there was a substantial increase in manufactured exports, from US $865 million in 1981 to US $2.5 billion in 1987, or 11.3 percent of total exports. Among manufactured commodities, textiles have recently become a major non-oil export commodity, accounting for 6 percent of total exports or 11 percent of all non-oil exports. Despite such substantial increases in manufactured exports during 1980s, on a percapita basis Indonesia's manufactured exports were still low when compared with those of neighboring countries such as Malaysia, Singapore, Thailand and the Philippines[7)].

In 1992/93 oil and LNG exports had fallen to only 30 percent of total exports, and non-oil exports increased to 70 percent (Table 4.14). Values of oil and LNG exports during 1984/85-1992/93 had decreased on the average by 3.5 percent.

Table 4.13.
Exports of Major Commodities
(in millions of US dollar)
1969-1987

| Year | Total exports[a)] | Net oil/gas | Major non-oil Exports | | | |
|---|---|---|---|---|---|---|
| | | | Timber | Rubber | Manufacturing | Textiles[b)] |
| 1969 | 908 | 279 (30.7) | 34 (3.7) | 307 (33.8 ) | 20 (2.2 ) | - |
| 1973 | 2625 | 1016 (38.7 ) | 720 (27.4 ) | 483 (18.4) | 77 (2.9 ) | - |
| 1974 | 5550 | 3351 (60.4 ) | 615 (11.1) | 425 (7.7) | 114 (2.1) | - |
| 1975 | 5999 | 4182 (69.7 ) | 527 (8.8) | 381 (6.4) | 144 (2.4) | - |
| 1976 | 7006 | 4472 (63.8 ) | 885 (12.6) | 577 (8.2 ) | 196 (2.8) | - |
| 1977 | 9158 | 5647 (61.7 ) | 943 (10.3) | 608 (6.6) | 245 (2.7) | - |
| 1978 | 9418 | 5759 (61.2 ) | 1003 (10.6) | 715 (7.6) | 360 (3.8) | 24 (0.3) |
| 1979 | 11479 | 5900 (51.4 ) | 1912 (16.7) | 1023 (8.9) | 447 (3.9) | 59.5 (0.5) |
| 1980 | 13710 | 7631 (55.7 ) | 1900 (13.9) | 1113 (8.1) | 540 (3.9) | 128 (0.9) |
| 1981 | 19311 | 14880 (77.0 ) | 948 (4.9) | 910 (4.7) | 865 (4.5) | 87.5 (0.5) |
| 1982 | 15314 | 11436 (74.7 ) | 872 (5.7) | 606 (4.0) | 853 (5.6) | 153 (1.0) |
| 1983 | 14859 | 9866 (66.4 ) | 1111(7.5) | 859 (5.8) | 1483 (10.0) | 236 (1.6) |
| 1984 | 17817 | 12042 (66.3) | 1173 (6.6) | 959 (5.4) | 1803 (10.1) | 405 (2.3) |
| 1985 | 15974 | 9996 (62.6) | 1206 (7.6) | 719 (4.5) | 2398 (15.0) | 451 (2.8) |
| 1986 | 12215 | 5559 (45.6 ) | 1408 (11.5) | 710 (5.8) | 2577 (21.1) | 746 (6.1) |
| 1987 | 14994 | 6345 (42.3 ) | 2231 (14.9) | 886 (5.9) | 2538 (16.9) | 913 (6.1) |
| Average | | | | | | |
| 1973-80 | 81118 | 4745 (58.5) | 1063 (13.1) | 666 (8.2) | 265 (3.3) | _ |
| 1981-87 | 15783 | 10018 (63.5 ) | 1278 (8.1) | 807 (5.1) | 1788 (11.3) | 427 (2.7) |

**Note:** a) Total exports include total non-oil merchandise and net oil/gas
b) Textiles are also included in manufacturing
c) Numbers in parentheses indicate the percentage share in total exports

**Source:** *Report of Bank Indonesia*,, various issues

Table 4.14
Exports of Non-oil and OIL & LNG, 1984/85-1992/93
Value (US$ billion)

| Year | Non-oil | | | | Oil & LNG |
|---|---|---|---|---|---|
| | Agriculture | Mineral | Manufactured | Total | (FOB) |
| 1984/85 | 3.67 | 0.78 | 1.47 | 5.92 | 14.00 |
| 1985/86 | 3.64 | 0.80 | 1.74 | 6.18 | 12.43 |
| 1986/87 | 4.50 | 0.72 | 1.52 | 6.74 | 6.97 |
| 1987/88 | 5.76 | 1.11 | 2.63 | 9.50 | 8.84 |
| 1988/89 | 6.93 | 1.56 | 3.70 | 12.19 | 7.64 |
| 1989/90 | 7.03 | 1.58 | 5.89 | 14.50 | 9.34 |
| 1990/91 | 7.26 | 1.44 | 6.68 | 15.38 | 12.76 |
| 1991/92 | 7.82 | 1.69 | 9.50 | 19.01 | 10.70 |
| 1992/93 | 8.89 | 2.20 | 13.74 | 24.83 | 10.50 |
| Average growth rate(%) 1984/85-1992/93 | 11.7 | 13.8 | 32.2 | 19.6 | -3.5 |

*Source* : Bank Indonesia (non-oil export based on PEB Export Declaration Form)

As noted in the previous discussion, one unique feature of the deregulation of the Indonesian economy was that it began by opening first the capital account in 1970, and was then followed with other reforms. This approach does not conform to the postulates of the sequencing literature. According to the literature, the international capital account should be opened "last", that is after fiscal and monetary reforms have been introduced and the current account opened. Considering that assets markets adjust faster than goods markets, the premature deregulation of capital flows can lead to speculation and financial instability [8]. Indonesia's open capital account limits the effectiveness of monetary policy but it has several benefits and should be maintained as it stimulates foreign aid and domestic investment, provides a barometer of macroeconomic policy (a

loosening of monetary policy would quickly be reflected in reserve outflows), combined with relatively fixed exchange rate places a greater role of fiscal policy in affecting aggregate demand. Besides, it is also difficult for a country to close capital account, given the mobility of international capital flows nowadays.

Since the balance of payments must be balanced, any deficit (surplus) in the current account was always offset by the surplus (deficit) in the capital accounts and change in the stock of official foreign reserves. During 1982-1989, a total net inflow of long-term capital ranged from US$3 billion to US$5 billion per year, with official capital inflow took the bigger part. In 1990 net official capital inflow dropped drastically to US$0.60 billion from US$2.80 billion in the previous year. On the other hand net private capital inflow increased tremendously from an average US$ 0.35 billion during 1988-89 to an average not less than US$4 billion during 1990-1992 (Table 4.9).

Despite Indonesia's good performance in external adjustment and its cautious approach to external borrowing, the debt burden rose sharply in the 1980s.

Table 4.15.
External Borrowing and Debt, 1982-1992 (US$ billions)

| | 1982-85 | 1986-88 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|
| Net Public Ext.borrowing | 2.9 | 1.9 | 2 | 0.6 | 2 | 1.6 |
| -Official resources | 1.2 | 2.1 | 2.9 | 2.5 | 3.2 | 3 |
| -Non-official res. | 1.7 | -0.3 | -0.9 | -1.9 | -1.1 | -1.4 |
| Net Priv.MLT | 0.1 | 0.7 | 1.1 | 1.2 | 1.9 | 2.6 |
| | | | Debt Stock (year end) | | | |
| Debt Stock | 34.2 | 50.8 | 52.9 | 66.5 | 75.9 | 84.4 |
| Public Ext.debt | 26.8 | 41.2 | 41 | 45 | 48.6 | 49.3 |
| Private MLT Ext.debt | 3.8 | 5.5 | 6.6 | 10.3 | 12.9 | 16.9 |
| Priv Short Term debt | 3.6 | 4.1 | 5.3 | 11.2 | 14.4 | 18.2 |

Notes: MLT is an abbreviation of medium long term debt.
*Source*: Calculated from World Bank, World Debt Tables, 1993-94

By the end of 1988 the stock of medium and long-term public and private debt outstanding and disbursed had reached US$50.8 billion and kept increasing and in 1992 reached $84.4 billion (Table 4.15). From 1987 until 1992 total debt as a percentage of GDP had never been lower than 60%, though the debt service ratio was kept steadily at 30% (Table 4.9). Many of Indonesia's debt indicators in the 1980s are above the average for all developing countries and in line with those for highly indebted countries. However, unlike the highly indebted countries, Indonesia has not faced a foreign exchange crisis or a cash-flow constraint on payment of its external debt obligations, due to some important factors[9]:

1. As a result of maintaining sound economic policies and a prudent borrowing strategy, it receives strong financial support from official sources on concessional terms[10]
2. It has substantial reserves available in the form of foreign exchange and undrawn lines of credit.
3. It has retained access to new voluntary lending from commercial banks.

### 4.3.5. Monetary development

The development of Indonesia's monetary conditions during the new order regime may be divided into three periods: 1966-73, 1973-83 and 1983-present. The first period was recognized as the period of stabilization and rehabilitation. This pre-oil boom period marked a fundamental change in monetary policy which led to the more market-oriented outlook of the order regime. The main objective was first to halt hyper-inflation by tight

fiscal-monetary control, and to create a banking system as a financial intermediary which could play an active role in the task of development.

In the framework of mobilizing and allocating savings to finance part of rapid growth of investments, a new interest rate policy was introduced. The idea behind this interest rate regulation was to stimulate demand for and influence the composition of financial assets through controlling banks' deposits and lending rates. For this purpose, deposit rates must be high enough to make them attractive, while lending rates must be low enough to control inflation and foster the growth of investment. The positive interest rate difference favourable to depositers was made possible by government interest subsidies. Change in interest rates had been made frequently in line with changes in the rate of inflation and general economic conditions. During 1968-74, there had been interest rate adjustments so many times. The result of this policy had been a rapid increase in time and saving deposits, from only Rp5 billion (in nominal term) in 1968 (not shown) to more than half a trillion rupiahs in 1974, and increased to Rp7.1 trillion and Rp90.3 trillion in 1983 and 1992 (Table 4.16). In short, monetary policy during the pre oil boom era, under circumstances that were relatively free from external pressure either from the budget or the balance of payments, worked considerably well. The inflation rate fell from about 600 percent per year during 1965-66 to around 40.7 percent during 1967-1973, while GDP grew on average at 6 percent per year (Table 4.2).

As the economy moved toward the oil boom in 1973 and 1974, the monetary system that had been developed in preceding years came under strain. A huge increase in foreign exchange earnings had led to a rapid expansion of bank credit. To limit excessive money supply expansion resulting from bank credits, the government then imposed direct control

over domestic credit. This policy was widely known as credit ceiling and lasted until 1983. By credit ceiling, we mean there was a maximum percentage of increase in a bank's loan position for a certain period. These measures, anyway, had added to the complexity of the Indonesian financial system. Despite such complexity, the Indonesian monetary-fiscal policy was considered to be successful in keeping the inflationary effects of the 1973/1974 oil boom under control.

The financial reform measures, the so called "banking deregulation" taken on June 1,1983 represented a dramatic change in the financial system. The basic idea underlying this reform was that the tight monetary controls were no longer compatible with the present condition of the economy. Among other things, there were three important measures under the new system.

First, relaxation of interest rate regulation. Commercial banks were free to set most deposit and lending rates.

Second, the elaborate scheme of refinancing facilities was simplified so as to restrict access only to the highest priority sectors.

Third, was abolition of credit ceilings. Such direct control of bank credit expansion was replaced by indirect control through reserve money management and more active open market operations. The most striking effect of the new monetary measures has been the quick adjustment implemented by banking sectors through raising interest rates. For example, the interest rate on 6 month deposits jumped from 6 percent in 1982 to 13 percent per annum in 1983, and from 9 percent to 18 percent per annum for 12-month deposits[11]. As a result there was a considerable increase in the total amount of time deposits. Total time deposits were

doubled within a year after monetary reform, from Rp4 trillion in 1982 (not shown) to almost Rp8 trillion in 1983 (Table 4.16).

Table 4.16.
Growth of Money and Credit
1974-1992

| Description | Stock; End of Year (trillion rupiahs) | | | Annual rate of change (%) | |
|---|---|---|---|---|---|
| | 1974 | 1983 | 1992 | 1974-83 | 1983 - 92 |
| Reserve money | 0.8 | 4.9 | 14.7 | 22.3 | 13 |
| Money-supply (narrow money) | 0.9 | 7.6 | 28.8 | 26.8 | 16 |
| Time & savings deposit (Quasi Money) | 0.6 | 7.1 | 90.3 | 31.6 | 32.7 |
| Broad money | 1.5 | 14.7 | 119.1 | 28.9 | 26.2 |
| Domestic credit | 1.4 | 10.4 | 126.6 | 25 | 32 |
| - Private sector | 1.5 | 15.7 | 141.5 | 30 | 28 |
| - (Net government deposit) | (0.1) | (5.3) | (14.9) | (55) | (12) |
| | | | | | |
| Quasi Money / GDP | 5.31 | 9.15 | 34.62 | 6.2 | 16 |
| Narrow Money / GDP | 7.96 | 9.79 | 11.04 | 2.3 | 1.3 |
| Broad Money / GDP | 13.27 | 18.94 | 45.67 | 4 | 10.3 |
| Net Government Deposit / GDP | 0.88 | 6.83 | 5.71 | 25.6 | -2 |
| Money multiplier (m1) | 1.13 | 1.55 | 1.96 | - | - |
| Money multiplier (m2) | 1.88 | 3.00 | 8.10 | - | - |
| | | | | | |
| Inflation (CPI) | 21.29 | 69.97 | 135.03 | 14 | 7.5 |
| GDP (current prices) | 11.3 | 77.6 | 260.8 | 23.9 | 14.4 |

*Source* : Calculated from Indonesian Financial Statistics, *Bank Indonesia*, various issues.

Having two different monetary developments, recent Indonesian monetary policy experience can then be classified under two distinct financial regimes characterized by contrasting monetary objectives and use of different policy instruments. The first regime (1974-1983) can be attributed to credit control and extensive central bank intervention in credit allocation, associated with high oil revenue growth. The second regime (1983-1992) was characterized by a more market based monetary control, paralleled by a decline in oil export prices

A part of the success story of monetary policy is reflected in the containment of inflation pressure. The consumer price index, in the period 1983-92 shows a deceleration of the average rate of inflation (Table 4.16). The inflation rate fell from an average 14 percent in 1974-83 to 7.5 percent in 1983-92. Despite a large devaluation, cost push pressures on domestic inflation during 1983-92 were contained by lower levels of world inflation and the government's ability to restrain rice prices.

The low transmission of inflationary pressures through cost-push and demand-pull forces was supported by an appropriate monetary policy. This was achieved by slowing the rate of growth of reserve money and mainly by inducing people to hold large volumes of broad money, by deregulating domestic deposit rates. The surge in the growth of quasi-money (time and saving deposits), contributed to a sharp increase in the financial deepening of the economy and promoted financing investment through financial intermediaries. Reserve money in 1983-92 grew only 13 percent, compared to 22.3 percent in 1974-83 (Table 4.16). While the ratio of quasi money to GDP annually increased from 6.2 percent in 1974-83 to 16 percent in 1983-92, altogether the ratio of broad money (M2) to GDP increased from 4 percent to 10.3 percent over the same period. In line with this was the development of broad money multiplier, which increased from 1.88 in 1974 to 3.00 in 1983 and finally to 8.10 in 1992. The financial deepening allowed the expansion of credit to the private sector. The ability to bring down inflation even with two major devaluations is a strong indication of improved overall monetary management. Yet, the scope of monetary policy is restricted in moderating inflation, if not accompanied by prudent fiscal policy. This can also be seen from Table 4.16, when domestic credit to the private sector increased on average by 30 percent per year during 1974-1983, fiscal policy had been very restrained showing

an increase of net government deposits of 55 percent. But, as credit to the private sector slowed down to an average by 28 percent per year during 1983-1992, net government deposits increased by only 12 percent per year (government sector became more expansive or less contractive). This policy can be viewed as an "accommodating" fiscal policy to the monetary policy. The avoidance of borrowing from the domestic banking system to finance budget deficits - a striking feature of Indonesian fiscal policy that is uncommon in many other developing countries - has also facilitated the task of authorities in controlling inflation and keeping the balance of payments manageable. For most of the 1980s, the central government has accumulated rather than utilized deposits with the banking system.

### 4.3.6. Some lessons of experience and problem areas in the future

Although it is not incidental that Indonesia has been praised by many observers as a country in the developing world which has successfully maintained credit worthiness and non inflationary growth in the global scale, there are many problems remaining. Like most other developing countries, Indonesia is also still facing problems which are in common with other developing countries, such as poverty, a high unemployment rate, unequal distribution of income and balance of payment deficits, and especially the foreign debt burden.

The attack on poverty depends largely on the success of developing the agriculture sector. Past experience, shows that Indonesia had proven to be very successful in managing agriculture moving from being the biggest rice importing country in the world to rice self sufficiency. And extrapolating from developed countries' experience it is very clear that it is in the agriculture sector that the battle for development will be won or lost.

Attacking poverty also means providing more job opportunities for the unemployed.

As a matter of fact, the unemployment rate is still above the normal rate by international standards. This is aggravated by so-called underemployment and disguised unemployment.

High economic growth and a sustainable balance of payment deficits are two objectives which are not easily reconciled, due to the very fact that the Indonesian economy is a small open economy subject to world economic fluctuation. To some degree, the effects are beyond the control of the government. In other words, government is only able to lessen the impact of the world's economic fluctuations but not to totally alleviate it. The standard problem is how to maintain an internal and external balance in such a way that while the economy is growing it does not give rise to a balance of payments problem.

More equal distribution of income is not less important than the growth of income itself. Higher economic growth does not necessarily mean that more equal distribution of income will follow, as the trickle down effects argument suggests. To improve the distribution of income many ways can be adopted. Some of them have been proposed by Michael P.Todaro [12)]

- "getting the prices of factors of production right". For example government should make the use of capital intensive technology less attractive than the labor intensive one (by imposing higher taxes on capital intensive).
- taxation should be moving to a more and more progressive system.

- launching land reform, as the most important key in solving poverty and skewed distribution of income. This program has been successfully implemented in Japan and Taiwan.
- direct aid to the poor.

On the efficiency side, though Incremental Output Ratio (ICOR) went down from an average 7.8 in the period 1982-85 to an average 5.2 in the next three years, this figure is still quite high, which may represent the "high cost" economy.

Last but not least, central to the problem and issues of the Indonesian economy in the future is a consistent implementation of policy adjustments at an accelerated pace as already formulated and launched by the government.

In the realm of policy issues some policy mistakes are inevitable. In the monetary field the use of credit ceilings to control money supply was ineffective and the use of selective credit allocation (both during 1974-1983) biased to indigenous (non-Chinese Indonesian) and State Enterprises resulted in many cases of bad loans.

# FOOTNOTES AND REFERENCES TO CHAPTER IV

[1] Jeffry D. Sachs, in Introduction in "Developing Country Debt and The World Economy", National Bureau of Economic Research, The University of Chicago Press, 1969 (boldface type in the tax is added).

[2] John Bunton, "Building Indonesia: A Market Survey", Construction Press, London and New York, 1983.

[3] However, it is apparent that the balanced budget policy defined by the Indonesian government is not the one suggested in macroeconomic literature. In reality, this rule simply to refusing to finance the deficit through money creation and to limiting the deficit to the availability of foreign loans and aids, which is officially described as foreign "revenue". Budget were balanced only in the sense of making its total expenditure (domestic and abroad) equal to its total receipts (domestic and abroad).

[4] Raja J. Chelliah, "Significance of Alternative Concepts of Budget Deficit", IMF Staff Papers, XX (3) , November 1973.

[5] "Indonesia: Stability, Growth and Equity in Repelita VI", Document of the World Bank, July 20, 1994.

[6] Gelb, Alan, and associates, Oil Windfalls: Blessing or Curse, Oxford University Press, Oxford, 1988.

[7] Indonesia's percapita manufactured exports in 1986 were US $17.8 compared with Malaysia's $308.9, Singapore's $5643, Thailand's $75 and the Philippine's $49.

[8] See for example The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy, McKinnon, R.I, John Hopkins University Press, Baltimore, 1991, and World Bank Development Report 1990, pp.118 and International Money and Finance, C. Paul Hallwood & Ronald Mac Donald, 2nd Edition, Blackwell Publishers, 1995, p.338.

[9] Sadiq Ahmed, "Indonesia: Stabilization and Structural Change", in Restructuring Economy in Distress, Policy Reform and The World Bank, edited by Vinod Thimas, et.al, World Bank Publications, 1991, p.368.

[10] However, the data show that the proportion of concessionary loans to total public external debt declined from 52 percent in fiscal 1979-1980 to 40 percent in fiscal 1983-1984, while the proportion of variable interest rate loans rose from 15 to 22 percent.

[11] Indonesian Financial Statistics, Bank Indonesia, December 1984, p.90.

[12] Michael P Todaro, Economic Development in the Third World, 1989, pp.180-181.

# CHAPTER V:
# BUDGET DEFICIT CONCEPTS

## 5.1. Introduction

This chapter discusses the Indonesian budget system, some concepts of budget deficit in Indonesia, the concept which is chosen or applied in this study, the proposed concepts to be used for oil-exporting countries and to a lesser extent some other approaches.

We firstly discuss the budget process and the balance sheet of the Indonesian budget to be followed by a discussion on the concept generally used by the IMF and the World Bank: the concept which is applied in this study.

The next two concepts to follow are the domestic-foreign budget balance and the oil-adjusted budget balance which are primarily about the budget deficit concepts proposed for oil-exporting countries so that the may capture the "real" budget impact of oil revenue on the economy. The difference between the domestic-foreign budget balance and the oil-adjusted budget balance is that in the former the regrouping is to be made between oil and non-oil both for revenues and expenditures, while the latter necessitates that the oil component be extracted from total revenues compensated by an equal change in the expenditure. The former puts forth effort to see the monetary impact of "oil" and "non-oil" budget, while the latter attempts to get a real picture of the (non-oil) fiscal stance.

A somewhat different approach comes next in which the budget deficit is to be seen as total expenditure minus total domestic revenue. Total domestic revenue here covers oil and non-oil revenues.

Other approaches taken up in the last part of this chapter deal with the measurement of budget deficit in a non inflationary context, and of the proposed concept for using a comprehensive accounting for the public sector.

## 5.2. The Indonesian Budget Process

The importance of planning for economic and social development has long been realized in Indonesia. Since 1969, Five Year Development Plans (REPELITA) have been implemented. In fiscal year 1996/97 (fiscal year runs from April 1 to end of March), Indonesia is in the third year of the Sixth Five Year Development Plan (REPELITA VI), which runs from 1994/95 through 1998/99. The beginning of April 1994 also marked the nation's Second Long-Term Development Plan covering the 25 fiscal years through 2018/19. Each Five Year Development Plan provides coherent statements of government policies, programs and projects necessary for development during the five subsequent years. The primary objectives of almost all the five-year development plan are what is called the Trilogy of Development: equitable distribution of development and its fruits, reasonable national economic growth and national economic stability. The priority is based on the assumed stage of development. In the first few five-year development plans the sequence, when the overcoming of inflation was still the main concern, was national economic stability, followed by national economic growth and equitable distribution of development.

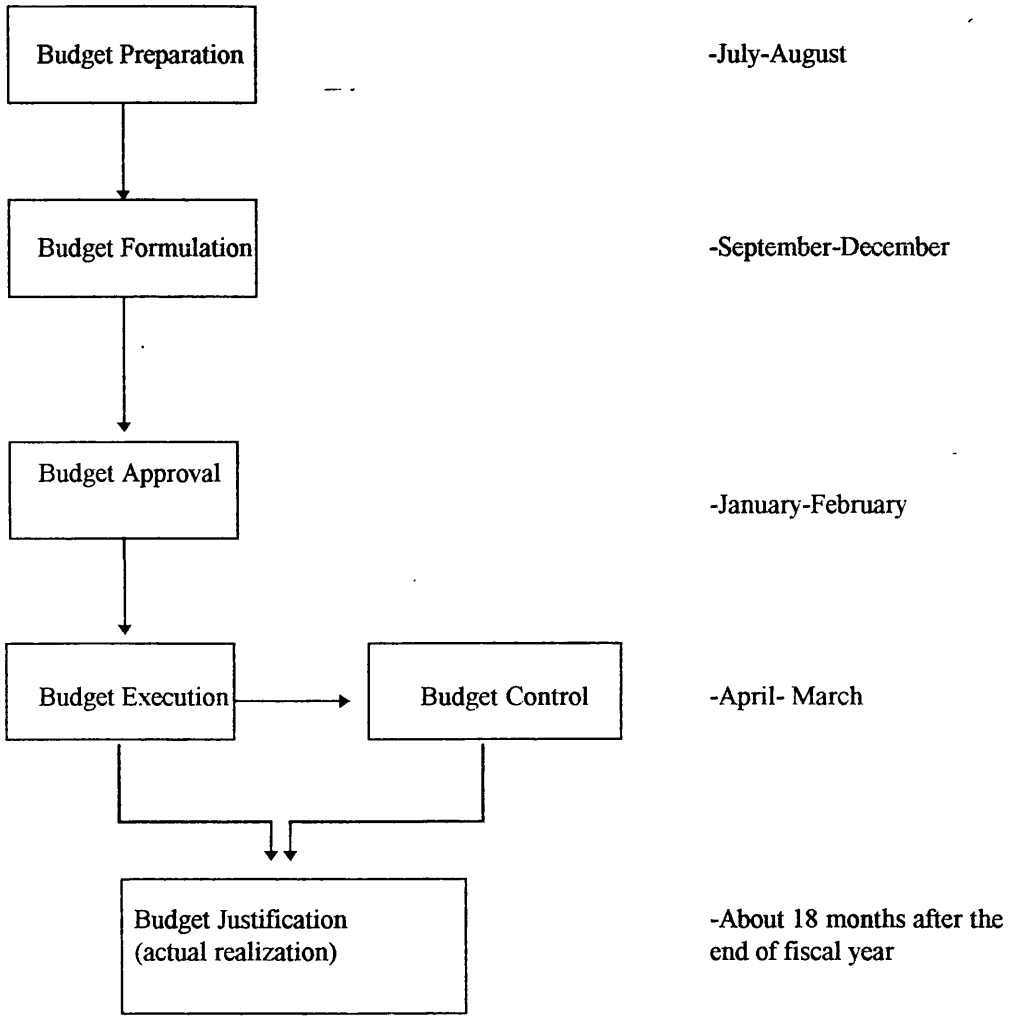
The formulation of the Five Year Development Plans is the responsibility of the National Development Planning Board (BAPPENAS)

in cooperation with different agencies, both those of central and local governments, and the business communities. To ensure the conformity of the government budget with the Five Year Development Plan, Bappenas, in cooperation with the Ministry of Finance, has primary responsibility for decisions on the development budget allocation, including the estimated amount of expenditures. However, the execution which includes control, disbursement and revenue collection, rests with the Ministry of Finance. As a rule, the expenditure for each fiscal year must be covered by the revenue for that fiscal year. Exceptions are carried-over expenses, continued expenses and contracts and outlays within the budget of each fiscal year that must be made within that fiscal year.

The budget process or budget cycle comprises budget preparation, budget formulation and proposal, budget approval, budget execution, followed by budget control and budget justification. The process can be depicted diagrammatically as follows:

Figure 5.1.

INDONESIA'S BUDGET CYCLE




In the budget preparation, the Government via the Ministry of Finance prepares a draft of the budget. The President, assisted by the Minister of Finance and the Chairman of Bappenas, is responsible for its final preparation and submission to Parliament (early January), approximately three months before the end of the current fiscal year.

The final draft comprises basically six elements:

**a**. A financial note which details the plans and policies to be implemented in the fields of monetary and balance of

payments policy and the objectives of the proposed budgets.

**b.** Estimates of revenues (taxes, excise, import-duties, etc.).

**c.** Draft of routine budget.

**d.** Draft of development budget.

**e.** Planned project aid and technical assistance projects to be financed by various donors in foreign currencies

**f.** Draft of budget legislation

Parliament holds hearings with the government (Minister of Finance) on the draft budget, makes adjustments, and authorizes the expenditure contained therein. The draft budget becomes law upon approval and cannot be exceeded without parliament's approval. Whenever it is necessary during the course of the fiscal year to change an item in the approved budget, a request is addressed to the Budget Committee in Parliament, which has the authority to approve minor interim changes. At the end of the fiscal year, a formal presentation is made to Parliament for the approval of cumulative changes made throughout the fiscal year.

## 5.3. The Balance Sheet of the Budget

Below is an example of the balance sheet of Indonesia's official budget plan for 1991/92 (in trillion rupiahs) :

Table 5.1.
Balance Sheet of Indonesia's Official Budget
(trillion rupiahs)

| Revenues | | | Expenditures |
|---|---|---|---|
| **A. Domestic revenues** | **40.184** | **A. Routine expenditure** | **30.558** |
| **I. Oil and gas receipts** | **15.008** | **I. Personnel expenditure** | **7.753** |
| 1. OIL | 12.522 | 1. Salaries/pensions | 6.068 |
| 2. LNG | 2.486 | 2. Rice allowances | 0.769 |
| **II. Non-oil receipts** | **25.175** | 3. Food allowances | 0.436 |
| 1. Income tax | 8.021 | 4. Other personnel dom. exp. | 0.267 |
| 2. Value added tax | 8.224 | 5. Overseas personnel | 0.213 |
| 3. Import duties | 2.574 | **II. Material expenditures** | **2.2** |
| 4. Excise tax | 2.215 | 1. Domestic | 2.038 |
| 5. Export tax | 0.121 | 2. External | 0.162 |
| 6. Land and property tax | 0.839 | **III. Subsidies to local gov't.** | **4.66** |
| 7. Other taxes | 0.351 | 1. Personnel expenditure | 4.346 |
| 8. Nontax receipts | 2.831 | 2. Non-personnel expenditure | 0.314 |
| | | **IV. Amorti. & int. payments** | **14.381** |
| | | 1. Domestic debt | 0.251 |
| | | 2. Foreign debt | 14.13 |
| | | **V. Other routine expenditures** | **1.564** |
| | | 1. Subsidies on fuel | 1.187 |
| | | 2. Others | 0.377 |
| **B. Development revenues** | **10.372** | **B. Development expenditures** | **19.998** |
| I. Program aids | 1.538 | I. Rupiah financing | 11.164 |
| -Program aid | 0.005 | II. Project aid | 8.834 |
| -Local financing (rupiah) | 1.533 | | |
| II. Project aid | 8.834 | | |
| **Grand total** | **50.556** | **Grand total** | **50.556** |

It is clear from Table 5.1 above, that the budget looks balanced, while in fact apart from off-budget activity it is in deficit equal to foreign loan amounting to Rp10.372 trillion to be classified as (development) revenues instead of means of financing. The realized budget balance has also been close to zero. The table also shows that the largest part of program aid is local financing or program aid that can be converted to local currency (rupiah) and used domestically, which will have a monetary impact.

Routine and development budget allocations are classified in almost the same manner according to the following classifications:

1. Sector
2. Subsector
3. Program
4. Project (or activity for the routine budget)
5. Ministries or Institutions
6. Organization Unit
7. Province.

## 5.4. Off-budget activities

Of special importance in the discussion of Indonesia's budget mainly related with the overall budget concept is off-budget activities. Regarding off-budget activities, the "location" is mainly in the government account at Bank Indonesia (Central Bank). The table below is an example of the change of government account with Bank Indonesia which consists of demand deposits owned by the State Treasury and other government institutions as well as claims on the Central Government in the form of Bank Indonesia's advance payment and other claims, including the off-budget account.

The table below reflects net claims of the Central Bank to the Central Government (net government indebtedness to Central Bank). Apart from government accounts with deposit money banks this means expansion or contraction of the money supply. In the example below, the government is running a deficit (expansion to money supply) of Rp 1.312 trillion.

Table 5.2.
Change of Government Account with Bank Indonesia, 1985/86
(trillion rupiahs)

| | | | |
|---|---|---|---|
| **Assets with Bank Indonesia** | **-1.395** | **Liabilities to Bank Indonesia** | **0.083** |
| 1. State Treasury account | -0.002 | 1.Bank Indonesia advances | - |
| a. Receipts(+) | 15.808 | 2. Others | 0.083 |
| -Budget | 15.222 | | |
| *Routine | 12.655 | **Change in net position** | **-1.312** |
| *Development | 2.537 | | |
| **-Non-budget ("off-budget")** | **0.586** | | |
| b.Expenditure(-) | 15.81 | | |
| -Budget | 10.61 | | |
| *Routine | 3.735 | | |
| *Development | 6.875 | | |
| **-Non Budget ("off-budget")** | **5.2** | | |
| *Cash supply to Treasury | 4.72 | | |
| *Bank Indonesia advances | - | | |
| *Others | 0.48 | | |
| 2.Other government accounts | -1.397 | | |

As seen from the table above, the "off-budget" account applies to both revenues and expenditures. This concept is aimed at capturing fiscal transactions outside the framework of the annual Budget. For example, on the revenues side, this concept captures among others reforestation funds, which accrue directly to the Forestry Ministry and are not recorded as a revenue in the Budget. On the expenditure side, the concept encompasses extra budgetary spending financed out of the Government's financial accounts. The limits of this concept should also be noted. Such transactions can only be estimated on a ***net*** basis; little is known about the size of the underlying gross revenues and expenditures.

## 5.5. Some Concepts of Budget Deficit in Indonesia

### 5.5.1. Overall budget balance ; The IMF and World Bank Concept: The concept applied in the study

Many concepts of budget deficit have been proposed, for Indonesia particularly, as well as for studies of its impact. For Indonesia, the popular one is the concept being used by the IMF and the World Bank.

In most of the studies on Indonesia the IMF or the World Bank defines budget deficit as being the sum of Total Revenue and Grants minus Current expenditure (including interest on external debt) which is equal to the Current budget balance minus Development expenditure and Net lending. From the financing side it consists of domestic financing and net foreign financing. Domestic financing is the change in net government deposits with the domestic banking system, while Net foreign borrowing is equal to Gross drawings minus Amortization. An example follows :

Table 5.3.
Indonesia: Summary of Central Government Operations [1)]
(in billions of rupiah)

| | 1989/90 |
|---|---|
| Tax revenue | 26,679 |
| Oil/gas | 11,253 |
| Non-oil/gas | 15,426 |
| Nontax revenue | 2,062 |
| Grants | 304 |
| Total revenue and grants | 29,045 |
| Current expenditure | 18,193 |
| Of which: Personnel | 6,202 |
| Subsidies | 1,290 |
| Interest on external debt | 4,496 |
| Current budget balance | 10,852 |
| Development expenditure and net lending [2)] | 12,683 |
| Total expenditure and net lending | 30,876 |
| **Overall balance** | **- 1,831** |
| **Financing, net** | **1,831** |
| Domestic [3)] | - 1,440 |
| Foreign, net [4)] | 3,271 |
| Gross drawings | 9,858 |
| Amortization | 6,588 |

Note:
1) The fiscal year begins on April 1
2) Derived as the sum of the current budget balance and net financing. Derived residually in this manner, these estimates of capital expenditure include off-budget spending.
3) Change in net government deposits with the domestic banking system
4) As derived from the balance of payments accounts.

*Source*: International Monetary Fund, Indonesia: Recent Economic Developments, May 21, 1993

The choice of a concept budget deficit definition is constrained by the data non-availability and the different theoretical approach. In this study, therefore, we follow the concept of budget deficit used by the IMF and the World Bank. The concept according to the writer has the following preferences :

1. The concept treats foreign borrowing and domestic monetary system as the sources of financing of budget deficit, which in fact they are;
2. By incorporating the domestic financing by the monetary system it take into account the monetary impact of budget deficit with regard to the monetary system. From monetary sense it covers, at least, the observable monetary impact;
3. The concept captures the net lending and, which may be uncommon in other countries, the off-budget activities;
4. Last but not the least, compared to other approaches, discussed in the following section, the data for this approach is relatively readily available.

In assessing the impact of the budget deficit on the current account in Indonesia in this study we use the primary budget balance concept (overall budget balance minus interest payment) with and without the domestic monetary system's financing, as the latter could be regarded to some extent as beyond the control of monetary authorities. Parallel with the primary budget balance concept the current account concept to be used is the current account without net factor income or simply the trade balance without net non-factor services (balance of trade of goods). This is discussed in the Appendix on Statistical Issues. We will also only deal with the deficit/surplus of the Central Government budget, without local government or public enterprises.

### 5.5.2. Domestic-Foreign Budget Balance Concept

This concept, though, not necessarily designed and commonly used for Indonesia, has a relevance for Indonesia as an oil developing country. This concept of budget deficit primarily deals with the issue of the monetary impact of budget resulting from oil revenues. For oil exporting countries (like Indonesia for example), where a substantial volume of external receipts and payments passes directly through the government's budget, it is argued that for such countries the domestic-foreign budget balance provides a better first approximation than overall budget balance in examining its impact on domestic economy. This concept is suggested by David R. Morgan[1)], and the following discussion is extracted from his paper.

The separation of government transactions into foreign and domestic transactions represent an attempt to estimate the direct impact of the budget on domestic, rather than total, demand. Government expenditure abroad does not add directly to domestic demand and therefore does not increase domestic employment and output. Similarly government receipts from abroad do not directly reduce private domestic resources. This approach, is said to be more than a straight-forward accounting exercise. In the case of government revenue, for example, the central issue is whether the revenue represents a withdrawal from the income stream in the domestic private sector. The exclusion of government tax revenue from domestically based, foreign-owned oil companies from the domestic balance implies that this revenue would otherwise have been transferred

abroad. On the expenditure side, it is also necessary to exclude all government expenditure directly incurred abroad.

Morgan further mentioned that the domestic budget balance concept, which emphasizes the first-round effects of budgetary operations on the generation of income and purchasing power, is closely related to liquidity budget balance analysis, which focuses on the liquidity or monetary implications of government operations. The liquidity balance differs from domestic balance in that it excludes domestic non-bank borrowing by the government.

To illuminate the issue a hypothetical example is illustrated below.

Table 5.4.A. A Hypothetical Oil Exporting Country:
Central Government Operation, 1973 and 1974
(*In millions of hypothetical dinars*)

| | 1973 | 1974 |
|---|---|---|
| Revenue | 100 | 400 |
| *External* | *90* | *385* |
| *Domestic* | *10* | *15* |
| Expenditure | 120 | 200 |
| *External* | *40* | *70* |
| *Domestic* | *80* | *130* |
| Budget surplus/deficit(-) | -20 | 200 |
| Financing* | | |
| Domestic banking system | 20 | - 200 |
| Memorandum item : | | |
| Domestic deficit(-) | - 70 | - 115 |

*. A minus sign represents a reduction in liabilities or an increase in assets

Table 5.4.B. A Hypothetical Oil Exporting Country:
Factors Affecting Changes in Domestic Liquidity,
1973 and 1974
(*In millions of hypothetical dinars*)

| | 1973 | 1974 |
|---|---|---|
| **Change in money and quasi-money** | **75** | **120** |
| Change in domestic assets (net) | 45 | -160 |
| *Claims on government sector* | *20* | *-200* |
| *Claims on non-government sector* | *25* | *40* |
| Change in foreign assets (net) | 30 | 280 |

From Table 5.4.A. the fiscal account shows a drastic change from a deficit to a large surplus in 1974 as a result of the sharp jump in oil revenues. The surplus is reflected in increased government deposits with the domestic banking system.

The conventional presentation of the monetary survey portrays the rise in the net foreign assets of the banking system as the primary expansionary factor in the growth of liquidity in 1974, and the large increase in government deposits as the main offsetting factor (See Table 5.4.B). Fiscal policy and, in particular, its monetary implications, appear contractionary. The conventional presentation conceals the fact that the government's fiscal operations constitute the primary determinant of changes in money and quasi-money. The receipt of oil revenues by government (the main factor underlying the rise in foreign assets) has no immediate monetary impact, since it is directly offset by a rise in government deposits. Only to the extent that government injects this revenue into the domestic income stream, through its domestic expenditure, is the inflow of foreign exchange translated into domestic liquidity. Hence, an analytically more meaningful presentation of the factors affecting changes in liquidity is presented in Table 5.4.C below.

Table 5.4.C. A Hypothetical Oil Exporting Country: Alternative Presentation of Factors Affecting Changes in Domestic Liquidity, 1973 and 1974 (*In millions of hypothetical dinars*)

| | 1973 | 1974 |
|---|---|---|
| **Change in money and quasi-money** | **75** | **120** |
| **Owing to :** | | |
| Domestic budget deficit | 70 | 115 |
| Non-government sector operation | 5 | 5 |
| *External transactions* | *-20* | *-35* |
| *Change in claims by domestic banks* | *25* | *40* |

*Note:* All entries in this table are taken from Tables 1 and 2 except for non-government sector external transactions, which enter as a residual.

The table above portrays government sector activity as the major expansionary factor in the growth of liquidity.

One important policy implication highlighted by this alternative presentation is that the exogenous nature of oil revenues to any one oil exporting country does not give rise to the monetary stabilization problems that would confront, say, commodity products where the sale proceeds were in the hands of the private sector. Under existing institutional arrangements in almost all major oil exporting countries, oil revenues are automatically sterilized. The relevant transmission mechanism is not the balance of payments, but rather the government budget.

### 5.5.3. Oil-Adjusted Overall Budget Balance Concept

Still in the light of oil-related issues, another approach to budget balance which is quite similar to the domestic-foreign budget balance (currency balance) illustrated above is oil-adjusted overall budget balance. This concept is proposed by Lazaros E. Molho[2]. He argues the problem of the concept of the domestic-foreign budget balance above is that in practice it is not always easy to identify the import content of government spending. In addition, by excluding foreign-financed government imports, the domestic currency balance misses the important effects of fiscal imbalances on the buildup of external debt.

Another problem which the domestic-foreign budget balance concept may encounter, according to the writer, especially in the case of Indonesia, lies in the difficulty in breaking down the balance of payments into private and public sector components.

While the domestic-budget balance concept wants to expose the *liquidity or monetary impact* of the budget stemming from oil revenue, the oil-adjusted budget balance concept is designed to get the real picture of *fiscal stance,* which accounts for some special features of oil revenue. But, like the domestic currency balance, the oil-adjusted balance reflects the true effects of oil-related budgetary developments on domestic demand, as it captures changes in oil revenue that are compensated by equal changes in expenditure, while disregarding uncompensated changes in oil revenue.

As such, this approach is regarded a more reliable measure of discretionary fiscal policy than the unadjusted balance, which is subject to oil revenue instability that is most often unrelated to policy factors. This

approach eliminates much of the year-to-year variability in the fiscal balance, making it easier to asses long-run policy trends.

This approach argues further, from a longer-run perspective, serves to account for the fact that *oil is an exhaustible resource*. If Government is assumed to be the sole owner of the oil wealth (as in the case of Indonesia), then oil-related receipts could be viewed as revenues from the sale of an asset. The conventional measure of the fiscal balance would, accordingly, overstate government saving until all oil wealth is depleted, and therefore provide a misleading picture of the sustainability of fiscal policy, as exposed by Buiter[3]. Buiter's approach will be briefly touched on in the section of Other Approaches.

Oil-adjusted balance, according to the writer, as far as the (non-oil) fiscal stance is concerned, addresses the problem well. But as the monetary impact of oil revenue become the main issue, it loses its relevance.

### 5.5.4. Budget deficit as total expenditure minus total domestic revenue

Besides budget deficit followed by the IMF's concept, and budget deficit seen as the monetary impact of banking systems loans to Central government (and state enterprises), Hal Hill, without using any empirical studies, lists the third possible approach that is the ***deficit*** as ***total expenditure minus total domestic revenue*** (oil and non-oil) as can be seen from Table below[4].

Table 5.5.
Estimates of the Budget Impact, 1969-92
(Rp billion)

| Fiscal year (1) | IMF (2) | E-R[a] (3) | Monetary impact[b] | |
|---|---|---|---|---|
| | | | Govt. (4) | Govt.+SEs (5) |
| 1969 | -76 | -91 | 4 | -22 |
| 1970 | -101 | -113 | 19 | -5 |
| 1971 | -91 | -117 | -16 | -29 |
| 1972 | -117 | -146 | 20 | -23 |
| 1973 | -163 | -197 | 24 | -9 |
| 1974 | -168 | -224 | -25 | -334 |
| 1975 | -468 | -488 | 410 | -518 |
| 1976 | -693 | -778 | 387 | -37 |
| 1977 | -393 | -770 | 293 | 230 |
| 1978 | -754 | -1,033 | 291 | -683 |
| 1979 | -764 | -1,379 | 1,140 | 890 |
| 1980 | -1,102 | -1,489 | 1,876 | 1,336 |
| 1981 | -1,172 | -1,705 | 131 | -552 |
| 1982 | -1,191 | -1,938 | -581 | -963 |
| 1983 | -1,862 | -3,878 | 2,220 | 1,942 |
| 1984 | -1,219 | -3,475 | 2,878 | 2,740 |
| 1985 | -948 | -3,572 | -1,199 | -1,376 |
| 1986 | -3,621 | -5,751 | 1,503 | 863 |
| 1987 | -1,028 | -6,156 | -1.822 | -2,355 |
| 1988 | -4,179 | -9,985 | 102 | -1,113 |
| 1989 | -3,362 | -9,426 | 62 | -1,046 |
| 1990 | -798 | -9,903 | 4,819 | 6,323 |
| 1991 | - | -10,407 | 2,407 | 895 |
| 1992 | - | -10,714 | 62 | 9 |
| | - | -10,714 | 62 | 9 |

a. Refers to total expenditure less total domestic revenue
b. Refers to expansion in the money supply due to (i) advances to the government, and (ii) advances to the government plus bank credit to state enterprises and public entities.
*Note* : Minus sign indicates a deficit or borrowings.
*Sources*: IMF, *Government Finance Statistics*, various issues; and *Nota Keuangan*, various issues.

*Source*: Hal Hill " The Indonesian Economy Since 1966 : South East Asia's Emerging Giant", Cambridge University Press, 1996, p 61.

The approach discussed in this section refers to column 3 of Table 5.5. above. All Hal Hill's analysis are simply based on the development of data series of the three approaches. As regards the development of the concerned approach *i.e. Budget deficit as total expenditure minus total*

*domestic revenue* (non-oil and oil), refers to col. 3, he mentions that the government has consistently run a deficit, and an increasingly large one in the late 1980s. Yet such a measure does not capture accurately the domestic economic impact of the budget, since there are large "leakages"(abroad) on both sides of the ledger. These include debt service payments and payments of the import-intensive oil sector payable abroad, though probably declining, proportion of the development budget, consisting of material and capital imports are substantial.

In his analysis on the *monetary impact approach* (col. 4 and col. 5) he commented that government has adopted a conservative fiscal strategy reflected by budget surplus with the monetary system as far as the Central Government deficit stance is concerned. However, as the coverage is extended to include bank credit to public enterprises and entities, reflecting off-budget activities a deficit is recorded in most years.

Referring to *IMF approach* (col. 2) which the example of detailed presentation is shown on Table 5.3., the analysis suggests that, except for 1990 and 1991, the government has run a deficit in every year since 1969, though on a significantly smaller scale than that suggested by a simple comparison of total expenditure and domestic revenue. As a proportion of GDP, according to this definition, the deficit has been with in the 2 to 3 percent range. This series suggests the government has not attempted to run a countercyclical fiscal policy, since small and large deficits have both been recorded in years of boom and recession.

However, Hal Hill points out the difficulty in analyzing the budget impact by simply saying "*the budget's economic impact is far less clear*"[5].

As regards the relationship between "domestic - foreign budget balance" and other concepts of budget deficits in Indonesia according to Mukul G.Asher and Anne Booth, however, is not yet clear :

> "Several commentators have pointed out the difficulties inherent in trying to reconcile the monetary figures with the other concepts of the budget deficit in common use in Indonesia"[6].

The authors refer to the previous study done by herself (Anne Booth) and Peter McCawley[7]. This observation also seems to be supported by Iwan Jaya Azis. He simply says that it is too naive to disregard the relationship between monetary impact and real impact of budget deficit, even though it is important to differentiate the two impacts[8]. In his study on the impact of Indonesia's budget on the economy Iwan is using a model developed by Bent Hansen.[9]

It is not exaggeration as N. Gregory Mankiw says, that in looking at budget deficit figure, (on top of the limited reliability of Indonesia's data) we should be cautious :

> "No economic statistic is perfect. Whenever we see a number reported in the media, we need to know what it is measuring an what it is leaving out. This is especially true for the government budget deficit" [10].

## 5.6. Other approaches

Vito Tanzi, Mario I. Blejer, and Mario O. Teijeiro in general suggested a certain measurement of fiscal deficit in a non inflationary context[11]. According to them the measurement of the fiscal deficit in a non-inflationary context is supposed to provide policymakers with an indication of the *net* impact of the government budgetary activity on

aggregate demand and on financial markets. It is intended to indicate the magnitude of *additional* resources over the ordinary government revenue that the government must attract from the private sector, or from external sources, to finance its own operations. The conventional definition is thus designed to be a measure of the government contribution to aggregate demand and, through this, to the external current account disequilibrium. Alternatively, it may measure the crowding out of the private sector in financial markets[12].

Under this definition, amortization payments are not added to other government outlays in the computation of the deficit, because of the implicit assumption that those amortization payments will not be regarded as income by those who receive them. Thus, one basic assumption is that the behavior of the bondholder *as consumers* will not be changed by the amortization payments. Furthermore, and this is another important assumption, bondholders are expected to willingly reinvest those receipts in new government bonds issued at current market conditions. In other words, their behavior *as financial investors* will also not be affected. Amortization services are, therefore, not expected to create additional pressures on financial or goods markets. In a noninflationary context, however, government interest payments should be treated differently from amortization payments. Interest payments are assumed to be regarded, by those who receive them, as just any other type of income to be consumed or saved depending on their propensity to consume. The payments are a return on wealth rather than a return of wealth. Thus they can be consumed without reducing the bondholder's accumulated net wealth. Therefore, interest payments would be similar in their macreconomic effects to any other type of expenditure.

Buiter and other economists have criticised the conventional measure of the deficit and fiscal stance indicators constructed by the IMF and the OECD, among others. Instead, Buiter advocates the use of comprehensive accounting for the public sector, which measures all changes in net worth of the public sector from whatever source. He criticised the conventional measure of the deficit, even though that measure is expressed in real terms, because it excludes changes to the net worth of the public sector stemming from changes in the real values of the outstanding stocks of public assets[13].

Another approach that can be mentioned is the concept proposed by Wing Thye Woo, who defines the budget deficit as being total government expenditure minus total domestic revenue and total debt service payments and expressing the result as a percentage of GDP[14]. By so doing can be derived the so called ***fiscal stimulus*** concept, to be used for evaluating the posture of fiscal policy in relation with the objective of exchange rate devaluation in Indonesia. In his analysis it is found that the posture of fiscal policy in Indonesia seems consistent with the objective of exchange rate devaluation.

## 5.7. Conclusion

As a conclusion we may say each concept of budget deficit has its own merits, and thereby has its own advantage and disadvantages. It all depends on the purpose of the study. The concept proposed by Buiter is probably the most ideal one as it covers almost all the activity of the public sector, but is also difficult to apply in developing countries where such comprehensive data are hardly available.

Those oil-related budget deficit approaches though theoretically appealing, those concepts, especially domestic-foreign budget balance, are difficult to apply in the real world because no government separates its budget into domestic and foreign transactions. It also fails to capture the effect of the public sector on the external balance. In addition to that it is not an easy task either for this approach to work by splitting balance of payments into private and public sector.

As far as the (non-oil) fiscal stance is concerned, the oil-adjusted balance approach seems very appropriate. But as the monetary impact of oil revenue should be taken into account, it loses its relevance.

The choice falls on the IMF-World Bank concept based on all of the considerations mentioned above.

# FOOTNOTES AND REFERENCES TO CHAPTER V

[1] David R. Morgan, "Fiscal Policy in Oil Exporting Countries, 1972-1978", IMF Staff Papers, July 1979.

[2] Lazaros E. Molho, "Fiscal Adjustment in an Oil-Exporting Country: The Case of Indonesia", IMF Paper on Policy Analysis and Assessment, October 1994.

[3] Buiter, Willem, "Measurement of the Public Sector Deficit and Its Implications for Policy Evaluation and Design", IMF Staff Papers, (Washington), Vol. 30 (June 1983), pp. 306-349.

[4] Hal Hill, "The Indonesian Economy Since 1966: South East Asia's Emerging Giant", p.60. Cambridge University Press, 1996.

[5] Hal Hill, *Ibid.*, p. 60.

[6] Mukul G.Asher and Anne Booth " Fiscal Policy", in Anne Booth, "The Oil Boom and After: Indonesian Economic Policy and Performance in the Soeharto Era", Oxford University Press, Singapore, 1992, p. 63.

[7] Anne Booth and Peter McCawley (1981) "Fiscal Policy", in Anne Booth and Peter McCawley, The Indonesian Economy during the Soeharto Era, Kuala Lumpur: Oxford University Press, 1981, pp. 126-161.

[8] Iwan Jaya Azis in; "Siklus Pengaruh APBN Dalam Perekonomian" (The Budget Cyclical Effect on the Economy), in "Pemikiran, Pelaksanaan, dan Perintisan Pembangunan Ekonomi (The Thinking, Implementation and Pioneering in Economic Development), Edited by M. Arsyad Anwar, The Kian Wie, Iwan Jaya Azis, Gramedia Publishing Company, Jakarta, 1992, p. 469.

[9] B. Hansen, "Fiscal Policy in Seven Countries" : 1955-1965, OECD, 1968.

[10] N. Gregory Mankiw "Macro Economics", Third Edition, Worth Publisher, 1997, p. 449.

[11] Vito Tanzi, Mario I. Blejer, and Mario O. Teijeiro "Inflation and Measurement of Fiscal Deficits" in "How to Measure the Fiscal Deficit", edited by Mario I. Blejer and Adrienne Cheasty, IMF, 1993, pp. 183.

[12] In a medium-term framework, monetization of the deficit would lead to inflation or reserves losses or both ; foreign financing would lead to appreciation of the real exchange rate and current account disequilibrium as well as inflation if the nominal exchange rate is not allowed to appreciate; domestic financing would push interest rate up, crowding out domestic investment or encouraging capital inflows and a consequent current account deficit. In the short run, changes in the deficit may also affect the level of economic activity.

[13] As quoted by G.A. Mackenzie in the subchapter on "Comprehensive Public Sector Accounting and Indicators of the Fiscal Stance", in "How to Measure the Fiscal Deficit", edited by Mario I. Blejer and Adrienne Cheasty, IMF, 1993, p. 23.

[14] Wing Thye Woo, Bruce Glassburner and Anwar Nasution "Macroeconomic Policies, Crises, and Long-Term Growth in Indonesia, 1965-90", Comparative Macroeconomic Studies, The World Bank Washington D.C., 1994, p. 95.

# CHAPTER VI:

# EMPIRICAL MODEL AND ESTIMATION PROCESS

## 6.1. Variables and models explained

### 6.1.1 Current account concepts :

Before discussing variables and models for the empirical analysis we begin with refreshing the definitions of current account. The current account of a country can be formulated in four different ways :

I. Current account surplus = (X-M) + NFI

II. Current account surplus = GNP - A

III. Current account surplus = I-S

IV. Current account surplus = ΔNFA of monetary authorities

where :

X = export

M = import

NFI = net factor income

GNP = gross national product

A = Absorption

= consumption + investment + government expenditure

I = Investment

S = Savings

ΔNFA = change of net foreign assets of monetary authorities

= net official capital inflow + net private capital inflow + monetary movements + error and omission.

In the case of Indonesia, the data corresponding to the first two concepts above are different from those of the last two. The source of the former data are Indonesian Statistical Office (BPS) that derived them from national income account, while the latter ones are from the central bank i.e. Bank Indonesia (BI). As regard the third definition, which is derived from flow of funds account, BPS data cover all levels of governments i.e. central, provincial, and local, whereas BI ones cover only the central government and other levels of governments are lumped into net private savings.

The examples of calculating current account surplus, using Indonesian data for 1990, are as follows:

I. Current account surplus = (X-M) + NFI
-8.6 = (51.9-50.9) + (-9.6)

II. Current account surplus = GNP - Absorption
-8.6 = 185.98 - 194.58

III. Current account surplus = I-S
-6.0 = Budget surplus + net private savings surplus
= 2.7 + (-8.7) *)

IV. Current account surplus = ΔNFA of monetary authorities
-6.0 = 1.1 + 7.6 - 3.8 + 1.1 **)

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*) As can be seen from Table 4.6, Chapter IV.

**) As can be seen from Table 4.9, Chapter IV, with average exchange rate US $1 = Rp1,843. Note that the right hand side of concept IV are the financing items indicated by opposite sign.

The differences in data are mainly due to the recording system discussed broadly in the statistical issues in Appendix I paragraph I.4. Based on the information from BI and BPS authorities, the differences between BI's data and BPS's data on current account merely involve the intercept, while the changes or the first differences (the slope) are the same. From the analytical point of view, this should not be a problem. However, BI's current account concept is more preferable, due to its prompt availability for daily policy making. For this reason the data which are going to be used in this study are the BI's ones. In the process of estimation we will only deal with the balance of goods (merchandise balance), without taking into account non-factor services i.e. insurance, tourism, etc. This exclusion is simply made due to the unreliability of the data of non-factor services. Non-factor services (and factor services) are quite often calculated by estimation[1)] and are more or less 10 percent of export or import values[2)].

### 6.1.2. Model specifications :

In the spirit of the Mundell-Fleming framework which is assumed to be suitable for Indonesian case, discussed in Chapter II, we would have a model as follows:

$$\text{I.} \quad M^s/P^d = M^d(Y, i^d) \tag{1}$$

$$\text{II.} \quad Y = AD = A(i^d, Y, G, T) + NX(EP^*/P^d, Y) \tag{2}$$

$$\text{III.} \quad BP = NX(EP^*/P^d, Y) + K(i^d, i^*) = 0 \tag{3}$$

By interpolating equation 1, we will get :

$M^s/P^d = M^d(Y, i^d) = lY - gi^d$

$i^d = 1/g\,[lY - M^0/P^d]$ gives LM curve

Linearizing and solving equation 2 gives :

$Y = k\,(A - d\,i^d + b\,EP^*/P^d)$ which represents IS curve.

Equation 3 represents BB curve (balance of payments equilibrium) where:

$M^s$ = nominal money

$M^d$ = demand for money

$M^0$ = a given level of money supply

Y = domestic income

$P^d$ = domestic prices

$P^*$ = world prices

AD = aggregate demand

A = domestic absorption

G = government expenditure

T = taxes

NX = net exports

K = net capital flows

E = nominal exchange rate

$i^d$ = domestic interest rate

$i^*$ = world interest rate

k = open economy multiplier

Under assumption of perfect capital mobility and static exchange rate expectation $i^d = i^*$.

As our main concern is to look at factors affecting balance of trade, or net export (NX) especially budget deficit impact through the models

above within Indonesian context, we therefore modify the net export function, NX, by adding up some other variables rather than only the real exchange rate, $EP^*/P^d$, and the domestic income, Y.

In formulating the balance of trade equation in Indonesia, one can not ignore the role of export and import of oil. Unfortunately, due to data non-availability of the explanatory variables, we cannot make separate estimation on the functions of trade balance broken down into oil and non-oil. These variables, export and import of oil, therefore, should be taken into account in the export and import functions, so that the export and import function would be as follows:

1. Export function:

   XNOIL + XOIL = f (factors affecting non-oil exports) + XOIL

2. Import function:

   MNOIL + MOIL = f (factors affecting non-oil import) + MOIL

where :

XNOIL = real non-oil exports

XOIL = real export of oil

MNOIL = real non-oil imports

MOIL = real import of oil

With regard to factors affecting non-oil export, XNOIL we can specify:

a. Real effective exchange rate. A real depreciation of exchange rate improves an exporter's competitive position, so that it will increase export.

b. World's real income. As a small open economy, Indonesia is assumed to be a price taker in both exports and imports, so that an increase in foreign income raises demand for exports.

c. Indonesia's real domestic income. We include this variable as domestic income determines the potential domestic demand for exportables. If domestic income rises, there will be an increase in domestic demand for exportables, hence exports will go down.

Meanwhile, factors affecting non-oil imports, MNOIL are:

a. Budget surplus. This is the variable that we want to examine its effects on the balance of trade, in this case through import. Budget surplus has a direct impact on import. The direct effect is the impact of lower expenditure on imports financed directly by government borrowings. The indirect effect comes from the impact of a fiscal surplus on lower inflation that leads to a depreciation of the exchange rate. This in turn will lead to lower imports and higher exports, bringing about a higher trade balance surplus. In this study we will apply two concepts of budget surplus. One is net resource inflow budget surplus (NRIBS) and the other is primary balance budget surplus (PBBS). For short, primary balance budget surplus (PBBS) is net resource inflow budget surplus (NRIBS), plus net position of central government budget with the domestic banking system. More details on the differences of the two concepts are discussed in Appendix I, paragraph II.

b. Indonesia's real domestic income. An increase in the domestic income will increase demand for domestic goods as well as imported goods, which means imports will also increase.

c. Real effective exchange rate. This is like the other side of the coin of the effects of real exchange rate on export. A real depreciation (a decrease in the real exchange rate index) may reduce demand for imports. The more expensive is the domestic price of the foreign goods, the lower the demand for the imported goods.

d. Real domestic credits of monetary authorities. Like the budget surplus, domestic credits also has indirect and direct impacts on balance of trade[3]. The indirect effect is contrary to the route that came to pass to that budget surplus effect. Higher flow of net domestic credit leads to inflation, which leads to an appreciation in the exchange rate. This in turn will have a dampening effect on exports and increase in imports. While, its direct effect works through higher imports financed by domestic credits.

Inserting all the variables into equation 1 and 2 gives :

(3). Export function:

$$XNOIL + XOIL = a_0 + a_1\ reer + a_2\ gdpwi + a_3\ Yn + XOIL$$

(4). Import function:

$$MNOIL + MOIL = b_0 + b_1\ busur + b_2\ reer + b_3\ Yn + b_4\ ndcma + MOIL$$

where:

reer = real effective exchange rate index

gdpwi = world's income growth index

Yn = Indonesia's real national income

busur = real budget surplus (NRIBS/PBBS)

ndcma = real flow of net domestic credit of monetary authorities

Subtracting (4) from (3) gives:

(5). $X - M = (a_0 - b_0) + (a_1 - b_2)\,reer + a_2\,gdpwi + b_1\,busur + (a_3-b_3)Yn + b_4\,ndcma + (XOIL - MOIL)$

All variables are in real terms with GDP deflator as the deflator[4].

By adding net factor income (NFI) to both sides and incorporating income terms of trade effect,[5] the equation can be transformed into:

(6) $(X-M) - X\,(P_x/P_m-1) + NFI = (a_0-b_0) + (a_1-b_2)\,reer + a_2\,gdpwi + (b_1)\,busur + (a_3-b_3)Yn + b_4\,ndcma + (X-M)_{oil} + NFI$

where

- $X(P_x/P_m-1)$ = income terms of trade effect
- $(X-M)_{oil}$ is the same term as (XOIL-MOIL)
- NFI = net factor income

In Indonesia, terms of trade effect is important for two reasons[6]:

1. The movement of export price and import prices are significantly different;

2. The role of external sector (exports and imports) in the Indonesian economy is quite important.

Equation (6) can be simplified into:

$$(7)\ CA = (a_0-b_0) + (a_1-b_2)\ reer + a_2\ gdpwi + (b_1)\ busur + (a_3-b_3)\ gdprl + b_4\ ndcma + (X-M)_{oil} + tot_y + NFI$$

where

- CA = current account surplus
- $tot_y$ = income terms of trade index.
- gdprl = real gross domestic product

Taking out $NFI_n$[7] from both side gives :

$$(8)\quad (X-M) = C_0 + C_1\ busur + C_2\ reer + C_3\ gdpwi + C_4\ gdprl + C_5\ ndcma + C_6\ (X-M)_{oil} + tot_y$$

For simplicity we can write Equation (8) as:

$$(9)\quad (NX) = C_0 + C_1\ busur + C_2\ reer + C_3\ gdpwi + C_4\ gdprl + C_5\ ndcma + C_6\ (NX)_{oil,} + C_7\ tot_{y,}$$

where NX is real balance of trade surplus.

Two variables *reer* (real effective exchange rate) and $tot_{y,}$ (index of income terms of trade) need to be addressed. These two variables are quite different concept and will theoretically, have independent effect on balance of trade. There are two things that make terms of trade and real effective exchange rate differ. Firstly, in the terms of trade concept, there are no domestic prices whatsoever involved, as in the real exchange rate. Secondly, the real exchange rate may be affected by changes in the nominal exchange rate, given domestic and foreign prices. The mathematical definitions can be represented as follows :

1. $TOT_y = (P^x/P^m) * X$

2. $REER = E * (P_d/P_f)$

where

- $TOT_y$ = income terms of trade
- $P^x$ = export prices in foreign currencies
- $P^m$ = import prices in foreign currencies
- X = volume of export
- REER = real effective exchange rate
- E = nominal exchange rate (a weighted basket of foreign currencies per rupiah)
- $P_d$ = domestic prices measured by GDP deflator or any other domestic inflation index.
- $P_f$ = world's prices

Simply say, income terms of trade ($tot_y$) may change with or without real exchange rate (*reer*) change. Both concepts are the same only in the economy where there are no tradable and non-tradable sectors. However, this is not always noted in the literature where the reciprocal of terms of trade is also often called "real exchange rate"[8].

The expected sign of the explanatory variables would be as follow :

*(In this study budget surpluses or trade balance surpluses are denoted with positive sign and deficits with negative sign)*

(1) The expected sign of real budget surplus (busur) in the import equation (Equation 4) is expected to be negative, due to direct impact of lower expenditure on imports directly financed by foreign and domestic

government borrowing ($b_1<0$). As budget surplus decreases imports, it will then raise the balance of trade surpluses ($C_1>0$; Equation 9). Coefficient in the budget surplus will not include the indirect effect of budget surplus, because it will be picked-up by real exchange rate.

(2) The real exchange rate in this study uses the following concept :

$$REER = E * (P_d/P_f)^{9)}$$

where :

- REER = real effective exchange rate index
- E = nominal exchange rate (a basket of foreign currencies per rupiah)
- $P_d$ = domestic prices index
- $P_f$ = foreign prices index

A decrease in the real exchange rate index represents a depreciation of the real exchange rate. This occurs when the nominal exchange rate (a basket of foreign currencies per rupiah) decreases (See Table 3.2 Chapter III), or when the Indonesian trading partner inflation increases higher than that of the Indonesian. This will affect the incentive for both exports and imports. A real depreciation of exchange rate increases the incentive to export, because the foreign currencies price paid for exports is decreasing faster than exporters' production costs (domestic inflation). Alternatively, a real depreciation may suggest that competitors' costs (foreign inflation) are increasing by more than that of Indonesian production. Either way, a real depreciation improves an exporter's competitive position ($a_1<0$; Eq.3). On the import side, a real depreciation (a decrease in the real exchange rate index) indicates that

prices of domestic goods (in foreign currencies term) given by the combination of the nominal exchange rate and the domestic inflation are decreasing faster than those of foreign goods. This decrease in domestic prices, relative to import prices, slows imports ($b_2>0$; Eq.4). All in all, a decrease in the real exchange rate index increases the balance of trade surplus ($c_2<0$; Eq.9).

(3) World's real income growth index's coefficient will unambiguously be positive, because higher world real income will increase export, so that it raises balance of trade surplus ($C_3>0$; Eq.9).

(4) The expected sign of real gross domestic product (gdprl), will be negative, if the elasticity of imports is greater than that of exports, with respect to income ($C_4<0$; Eq.9).

(5) Net domestic credit of monetary authorities will have an adverse effect on balance of trade surplus. In Indonesia, there is always a tendency to use this credit for import, either directly extended by the central bank (BI) or indirectly through liquidity credits given to the commercial banks, which will also increase import. The indirect effect, like budget surplus, will be picked up by real exchange rate mentioned above. The sign of real flow of net domestic credit is, therefore, expected to be negative ($C_5<0$; Eq.9).

(6) Net export of oil, $(X-M)_{oil}$ will unambiguously have positive impact on balance of trade surpluses. An increase in net-oil export will increase total balance of trade. Therefore the expected sign of $(X-M)_{oil}$ is expected to be positive, as Indonesia has been a net oil-exporter ($C_6>0$; Eq.9).

(7) The sign of the income terms of trade variable ($tot_y$) is unambiguously positive. A rise in the terms of trade means that $P_x$ (export price) has relatively gone up to $P_m$ (import price), so that it will raise the balance of trade surplus ($C_7>0$; Eq.9).

## 6. 2. Estimation process

Recent econometric theory and practice have undergone dramatic change and had a far reaching effect which focus more attention on the time series properties of the data typically used in the regression analysis. As it is mentioned as follows:

> "Methodological revolutions in economics are not new. Economics has gone through the Keynesian, monetarist, neoclassical and new classical evolutions in the post war period. The major impact of each one of these revolutions is that they call for a fundamental change in our way of thinking about modelling economic phenomena. Such revolutions in economics are invariably controversial partly because they often imply that existing policy measures are inappropriate and should be abandoned in favour of a new set of policies. Herein lies a major source of controversy.....
>
> At the moment, both economics and econometrics are going through a new type of revolution : the unit root test and co-integration revolution. This new revolution calls for a fundamental change in thinking about methods of estimation of economic relationships as well as modelling fluctuations in economic activity. However, there is a major difference between the new and the old revolutions. Debates about the significance of the new revolution can be conducted within a positive framework and without the need for its appeal to one's sense economic justice. Consequently the new revolution has attracted not only the attention of specialist econometricians but also a large number of policy oriented applied economists. Methodological predilections are less important for judging the significance of the new revolution!"[10].

A large number of time series used in econometric analysis that are non-stationary (variables which contain stochastic, i.e. random trends)

imply a number of restrictions on their use in regression analysis. Specifically, a regression of one non-stationary series on another can give rise to the so-called spurious regression problem and lead to incorrect statistical inferences [11]. The non-stationarity problem can usually be removed by first differencing the data, but in doing so, the potentially interesting information about long-run equilibrium relationship between economic variables is lost.

The works by Granger and others have, however, found a way to advantageously exploit the spurious regression problem[12]. The basic result of their analysis centers on the notion of co-integration: linear combination of two or more non-stationary time series can, in some circumstances, turn out to be stationary. According to "superconsistency" property if say, variable $y_t$ and $x_t$ in a linear function $y=\alpha+\beta(x)+\varepsilon_t$, are both non-stationary $I(1)$ variables, and $\varepsilon_t \sim I(0)$, then as sample size becomes larger the ordinary least square (OLS) estimator of $\beta$ converges to its true value at a much faster rate than the usual OLS estimator with stationary $I(0)$ variables [13].

The existence of co-integrating relationships turn out to be synonymous with the existence of a long-run equilibrium relationship between the economic variables. The proof of this result also establishes a correspondence between co-integration and the error-correction model, which has developed in tandem with the new results on the properties of time series: "if a co-integrating relationship exists, then it can be legitimately used in an error-correction model"[14].

Empirical attempts to capture the sluggish adjustment of dependent variable towards its desired equilibrium have often employed the assumption of partial adjustment in which a fixed proportion of the difference between desired and actual results diminishes each period. Recently this approach has been criticized as overly restrictive because it assumes that adjustment costs and expectations can be captured in a very specific, simple-fashioned way. An approach regarded as having more advantages is error-correction model (ECM)[15]. In this study an error-correction dynamic specification is used. Shortly, ECM can be thought of as a more general, intertemporal version of partial adjustment in which expectations are based on the available information.

In the context of this analysis here, if the linear combination of trade balance, budget surplus, trade balance on oil, real exchange rate, world's income growth, and other variables in Equation (9) formed a co-integrating relationship, then it would also represent the long-run relationship between these variables. Furthermore, the residuals formed by subtracting actual trade balance from the fitted values of the long-run relationship described by Equation (9) would be stationary and would form a legitimate error-correction to include in Equation (10). The error-correction of trade balance function can then be written in the form:

$$
\begin{aligned}
(10)\ \Delta(NX) \;=\; & d_0 + \sum_{0}^{n} ( d_{1i}\,\Delta busur + d_{2i}\,\Delta reer + d_{3i}\,\Delta gdpwi \\
& + d_{4i}\Delta gdprl + d_{5i}\,\Delta ndcma + d_{6i}\,(\Delta NX)_{oil} \\
& + d_{7i}\,\Delta toty + d_8[(NX)-\overline{NX}]_{-1} )
\end{aligned}
$$

where the symbol $\Delta$ represents a first difference of a variable and $\overline{NX}$ stands for the fitted values from Equation (9), or the term with $d_8$ coefficient represents the lag residual of Equation (9). This term represents deviations from long-run equilibrium and gives the equation its correcting properties: it ties the short-run behaviour of trade balance (NX) to its long-run value. It is quite common in the econometric literature for the lagged difference of the explanatory variables to be introduced in the equation. This approach however is regarded suitable only for analysing monthly or quarterly data. As we are here dealing with yearly data and, to some extent, need to save the degree of freedom, we therefore do not introduce lagged difference of the explanatory variables. In this model we suppose not to expect to have a dynamic effect over a year. It is also sensible for one to see (say Granger or Sims) causality effect on monthly or quarterly data basis which happen within one year. For annual data analysis the effect of one year lag or more is too long to have much economic meaning. For this reason we do not apply causality test. The static long-run equilibrium properties of the trade balance function represented by Equation (10) are identical to Equation (9)[16].

The method adopted here follows that of Engle and Granger[17] and after preliminary analysis to establish the order of integration of the data series, employs a two-stage estimation process. In the first stage, Equation (9) is estimated directly by ordinary least squares (OLS) regression and the residuals of this regression are then tested for stationarity to determine whether the regression equation might represent a co-integrating relationship between variables investigated. Engle and Granger shows that (as has been touched on "superconsistency" property above) if this is the

case, the OLS estimates of the coefficients are consistent and converge rapidly to the long-run behavioral parameters. If stationarity is rejected, the data do not support the existence of a stable long-run relationship between variables.

In the second stage, error-correction model (Equation 10) is estimated for co-integration relationship to be found. Again, Engle and Granger show that OLS provides consistent estimates of the parameters in this equation, even where all regressors are not strictly exogenous. Equation (10) is specified first as first difference in the dependent and independent variables, plus the lagged residuals from Equation (9) - the error correction term. This general specification is reduced to a more compact form by eliminating insignificant variables. This process, pioneered by D.F. Hendry, is known as a "top-down" or a "general to specific" approach. RL Thomas gives his comment on this as follows:

> "However, regardless of the attractions of the Leamer and Sims approaches, the fact remains that studies adopting the Hendry approach are far more common, particularly in the UK, than research work using either of the other methodologies"[18)]

# REFERENCE AND FOOTNOTES TO CHAPTER VI

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[1] Bank Indonesia, "Financial Report, 1992/93", p.77.

[2] Discussion with Bank Indonesia's (Central Bank) authorities.

[3] Recall Chapter II on the discussion about monetary approach to balance of payments. The money market is in equlibrium when the real money supply equals real money demand, that is when:

$$M^S/P = kY$$

if NFA denote the central bank's foreign assets and NDC its net domestic credits, and *m* is the money multiplier, then:

$$M^S = m\ (NFA+NDC).$$

We consequently can derive as follows :

$$NFA = (1/m)\ Pk\ (Y)\text{-}NDC$$

The change in central-bank foreign assets over any time period, ΔNFA, equals the balance of payments (Please see paragraph 6.1.1 of this Chapter). If we assume that *m* is constant, the balance of payments or current account surplus is

$$\Delta NFA = (1/m)\Delta[Pk(Y)] - \Delta NDC$$

The first term on its the right-hand side of the equation reflects changes in nominal money demand, ceteris paribus, an increase in money demand will bring about a balance of payments surplus and an accompanying increase in the money supply which maintains money-market equilibrium. The second term on its right-hand side in the equation of balance of payments above represents supply factors in the money market. An increase in net domestic credit (NDC) raises money supply relative to money demand, ceteris paribus, the balance of payments will run into deficit to reduce the money supply and restore money-market in equilibrium. By plugging this variable as an explanatory variable, it can be viewed to a little extent as a partial attempt to apply monetary approach to balance of payments, as we are here dealing only with trade balance, instead of net foreign assets (net foreign reserves).

[4] Dividing all variables with GDP deflator, instead of its respective prices e.g. export or import prices, is made deliberately. Dividing by a common price index is required to maintain the equality of the Equation (9) and the choice of GDP deflator will allow us to see the policy effects of any variables on the balance of trade, measured in the same unit as national income. In a way this specification and estimation techniques-level of variables in real term-is the same as studies for Ghana, Marocco, and Pakistan in "Public Sector Deficits and Macroeconomic Performance," edited by Easterly, William, Carlos Alfredo Rodriguez and Klaus Schmidt-Hebbel, Published for the World Bank, Oxford University Press, 1994, pp 61. While studies on seven other developing countries use the dependent variable (current account or trade balance) either as a ratio to GDP or log ratio to GDP.

5) There are at least three kinds of terms of trade, namely net barter terms of trade, income terms of trade and single factoral terms of trade. See Gillis, Malcolm and others in "Economics of Development", Fourth Edition, W. W. Norton&Company, 1996, pp. 468-471. While the first measurement tell little about income effect of a trading country, the second concept to which the approach in this study is to be applied gives better measurement for that purpose. The last concept linked with the productivity of the export sector. The income terms of trade ($TOT_y$) measures the purchasing power of exports or the export capacity, which is comparing the index of export revenues to an index of import prices. This is equivalent to the net barter terms of trade, ($P_x/P_m$), multiplied by the volume of exports (X).

John P. Powelson describes terms of trade effect as follow : "Thus changes in the international terms of trade are similar to gains through increased productivity, and they contribute to a sort of social dividend. Unlike the case of increased productivity, however, this dividend is not part of the nation's product and therefore should not debited to the producing account. It is more like a "gift" from foreigners. Conversely, losses through adverse changes in the terms of trade contribute to a negative "social dividend" in that residents are required to pay "premium" in their trade with foreigners, as compared to the earlier bargaining position". See "National Income And Flow of Funds Analysis," by John P. Powelson, McGraw-Hill Book Company, Inc., 1960, pp.462-463.

6) Based on data observation, Indonesia's gross domestic income (GDY) which is gross domestic product plus terms of trade effect, with 1973 constant prices particularly since the middle of 1970s, had always been larger than GDP, being propped up by terms of trade effects mainly due to oil price increases. Since in this study all real term variables are obtained by deflating all nominal variable with GDP deflator with 1983 constant prices, the reverse situation occurs; the GDP with 1983 prices has always been larger than GDY. In other words using 1983 constant prices Indonesia has been suffering terms of trade losses instead of gains.

7) Net factor income from abroad (NFI) in Indonesia mainly consist of government foreign debt interest payments and outflow of profits of foreign companies in the energy sector. As factors affecting NFI are quite different from that balance of trade and non-factor services, NFI variable is taken out from the equation, so that we will get real primary balance of current account (trade balance and non-factor services). To analyze factors affecting NFI is also beyond the scope of the study. In the Indonesian history GNP has always been smaller than GDP due to negative effect of net factor income (NFI).

8) Referring to semantical confusion involved in those two different concepts see Sachs, Jeffrey D. and Felipe Larrain B. in "Macroeconomics In The Global Economy, Harvester Wheatsheaf, 1993, p.662. We may also find "Global Monetary Economics" by Emil-Maria Claassen, Oxford University Press, 1996, the textbook which discuss extensively about real exchange rate and terms of trade.

9) Notice we can also express real exchange rate in this form :

$$REER=1/E *(P_f/P_d)$$

Using this concept an increase in index means depreciation.

[10] B.Bhaskara Rao, "Cointegration for the Applied Economist", Edited by B. Bhaskara Rao, St. Martin Press, 1994. p.1.

[11] Enders, Walter, "Applied Econometric Time Series", John Wiley&Sons, Inc.,1995, p.216.

[12] For further discussion see David F. Hendry, "Econometric Modelling with Cointegrated Variables : An Overview", Oxford Bulletin of Economic s and Statistics (Oxford), Vol.48 (August 1986), pp.201-212 and C. W. J. Granger., "Development in the Study of Cointegrated Economic Variables", Oxford Bulletin of Economic s and Statistics (Oxford), Vol.48 (August 1986), pp.213-228.

[13] R.I.D Harris, "Using Cointegration Analysis in Econometric Modelling ", Prentice Hall, Harvester Wheatsheaf, 1995, p.53.

[14] Keith Cuthbertson and others giving comment on this as "The practical implication of this for dynamic modelling are profound : in order for an error-correction model to be immune from the spurious regression problem, it must contain a set of levels terms which cointegrate to give a stationary error term" in "Applied Econometric Techniques," by Cuthbertson, Keith, Stephen G.Hall and Mark P. Taylor, Harvester Wheatseaf, 1992, p.133.

[15] Full discussions can be found in R.I.D Harris, "Using Cointegration Analysis in Econometric Modelling", Prentice Hall, Harvester Wheatsheaf, 1995, p.24 or Anindya Banerjee, Juan J.Dolado, John W. Galbraith, and David F. Hendry in "Co-integration, Error Correction, And The Econometric Analysis of Non Stationary Data", Oxford University Press, 1993, pp.50-53

[16] For further discussion about long-run solution of error correction models, see Davidson, James E.H.,David F Hendry, Frank Srba, and Stephen Yeo, "Econometric Modelling of the Aggregate Time-Series Relationship Between Consumers' Expenditure and Income in the United Kingdom", Economic Journal, (London), Vol. 88 (December 1978), pp. 661-692 and Mark Salmon, " Error Correction Mechanism", Economic Journal, (London), Vol.92 (September 1982), pp.615-629.

[17] Engle, Robert F., and C.W.J. Granger, "Co-Integration and Error Correction: Representation, Estimation, and Testing", Econometrica, Vol.55, March 1987, pp.251-276.

[18] Thomas, R. L., "Introductory Econometrics: Theory and Applications", Longman, 1993, pp.147-148. A rather thorough discussion on the superiority of the general-specific approach to specific-general approach can also be found in this book. Thomas mentions though the Hendry methodology is nowadays frequently adopted by British and other econometricians, it should not be thought that it is the only modern approach

to applied work. For example, two methodologies of E.E. Leamer and of C. Sims can be cited. E.E. Leamer is on the contrary criticizing about the unrecognised influence of prior belief of investigator on much applied econometric work. Leamer's methodology suggests that a researcher identify in advance the parameters of interest in his study. Meanwhile C Sims advocating the all-important of data and that can be allowed to determine causality, sometimes in the face of recognised theory.

# CHAPTER VII:
# EMPIRICAL RESULTS, ANALYSIS AND POLICY IMPLICATIONS

## 7.1. Introduction

In Chapter II, the impacts of fiscal deficit on balance of payments and various approaches or theories to balance of payment have been highlighted. In Chapter V, budget deficit concepts were discussed and in Chapter III how fiscal policy and other policies were conducted within the frame work of government policies in maintaining stability and promoting growth has been presented. In the previous chapter (Chapter VI) empirical model and estimation process on factors affecting balance of trade including budget deficit and domestic credit were formulated. In this chapter, these specific models or equations were estimated with equation or model in the previous chapter as references and the results as well as policy implication are analysed. The discussion is classified into five subjects: test on the stationarity of the variables to be estimated, long-run equilibrium relationship, short-run relationship or error-correction mechanism, the illustration of the application of Mundell-Fleming model and policy implications. The elaboration of the discussion on estimation process and results of the long-run and short-run relationship can be found in Appendix II.

## 7.2. Test on the stationarity of the variables to be estimated

Before making estimations, we check firstly the stationarity of the variables to be estimated. The results follow:

Table 7.1.
Stationary test results

| Variable | Augmented Dicky-Fuller Test Statistics (ADF) | | |
|---|---|---|---|
| | Level | First difference | Second difference |
| NX | -2.611 | 4.428 | - |
| NRIBS | -0.828 | -6.301 | - |
| PBBS | -0.562 | -6.627 | - |
| TBOILR | -2.459 | -3.392 | - |
| GDPWI | 1.659 | -2.688 | - |
| TOTY | -1.615 | -3.058 | - |
| NDCMA | -3.840 | - | - |
| REER | -0.987 | -3.495 | - |
| GDPRL | 2.518 | 1.214 | -3.675 |

*Note*: The sample period was 1971-1993. The MacKinnon critical values were -3.786, -3.011, and -2.646 for 1%, 5% and 10% levels of significance respectively. This is based on the augmented Dickey-Fuller test with a time trend and one lagged dependent variable.

These results suggest that all variables are I (1) with the possible exceptions of NDCMA and GDPRL, which on the face of them would

appear to be I (0) and I (2) respectively. However, as regard GDPRL it is possible that GDPRL of order (2) is affected by:

(i) the relatively small data based, twenty observations

(ii) a structural break which can lead to erroneous conclusion with respect to stationarity[1)].

We later present evidence of such a structural break. The hypothesis GDP is I(1) receives some support when we subsequently find it to be part of a cointegrating set with other I(1) variables. Having established a case that all our variables can be considered I(1), we now proceed to examine their cointegrating properties by looking at the long-run equilibrium relationship within an error correction framework.

### 7.3. Long-run equilibrium relationship.

Running the regression of trade balance on the factors affecting it for the period under study, 1971-1993 does not give satisfactory result. The next step to do is to apply *non-a priori* informal tests to detect a structural break using recursive method such as recursive residuals, cusum test, etc. The results give an indication that structural break might have happened in 1991. Although the estimation gives "fabulous" result in terms of all the variables having expected signs and are highly significant, it fails against cointegration test. Finally, applying *a-priori* test, using Chow's forecast test, based on the assumption that the big fall of oil price in 1986 and its decelerated effect that might take place in the next immediate years would have a big impact on trade balance, it is then proved that there was structural break in 1988. Other causes of the structural break than the fall of oil price will be discussed later.

By applying "general to specific approach" through the whittling down process of the insignificant explanatory variables we finally obtain the result as follows (more elaboration on the process of estimation and diagnostic tests can be found in the Appendix II):

Table 7.2
Long-run equilibrium of trade balance

| LS // Dependent Variable is NX<br>Sample: 1971 1988<br>Included observations: 18 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -26.02201 | 6.976967 | -3.729703 | 0.0025 |
| TBOILR | 0.841626 | 0.090349 | 9.315303 | 0.0000 |
| GDPWI | 0.685576 | 0.129294 | 5.302462 | 0.0001 |
| REER | -0.060823 | 0.014922 | -4.075994 | 0.0013 |
| GDPRL | -0.525000 | 0.092290 | -5.688604 | 0.0001 |
| R-squared | 0.924230 | Mean dependent var. | | 3.613854 |
| Adj. R-squared | 0.900916 | S.D. dependent var | | 2.337264 |
| S.E. of regression | 0.735716 | Akaike info criterion | | -0.383689 |
| Sum squared resid | 7.036612 | Schwarz criterion | | -0.136364 |
| Log likelihood | -17.08769 | F-statistic | | 39.64278 |
| Durbin-Watson stat. | 2.048027 | Prob (F-statistic) | | 0.000000 |
| Norm.(2df); | $\chi^2_{(2)}$=1.90 | p=0.385 | | |
| Reset(p,n-p); | F $(_{3,\ 10})$= 0.14 | | | |
| Het.($n*R^2$) ; | $\chi^2_{(1)}$=0.865 ; $\chi^2_{(5)}$=4.182 | | | |
| Theil's coeff.; | = 0.07 | | | |

Table 7.3

| Engle-Granger Cointegration Test: UROOT(C,1) | | |
|---|---|---|
| -Cointegrating Vector- | NX | 1.000000 |
| | TBOILR | -0.841603 |
| | GDPWI | -0.685590 |
| | REER | 0.060821 |
| | GDPRL | 0.525010 |
| Dickey-Fuller t-statistic | | -4.8405 |

| | | |
|---|---|---|
| MacKinnon critical values: | 1% | -6.4881 |
| | 5% | -5.3537 |
| | 10% | -4.8190 |

Figure 7.1
Long-run equilibrium of trade balance

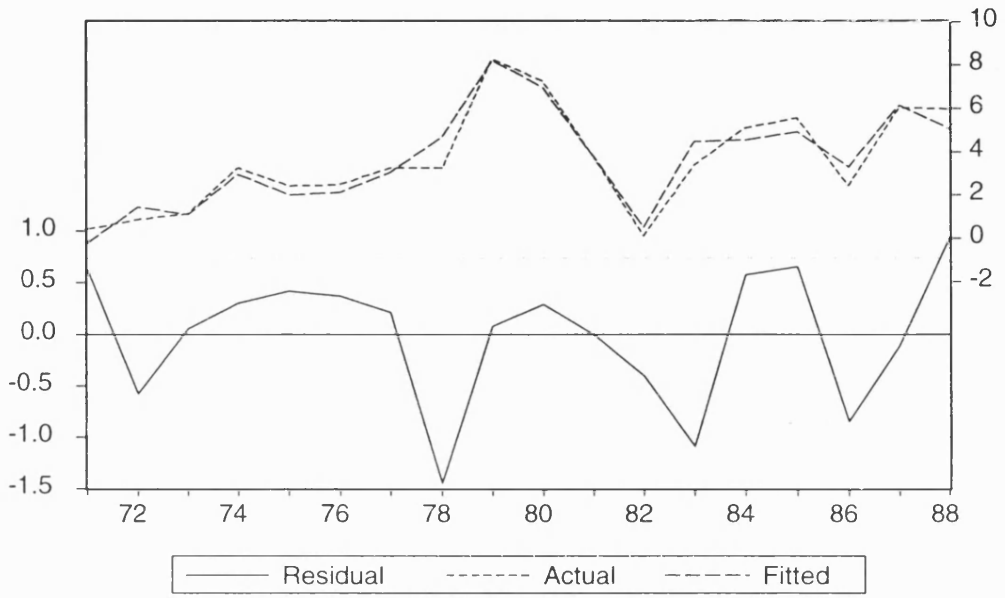



Table 7.2 above is the regression result of long-run equilibrium trade balance, and Figure 7.1 shows the actual and fitted value. All the variables have the expected signs and are highly significant. The regression is cointegrated at 10% level of significance (Table 7.3). Budget surplus whatever concept is used, domestic credit and terms of trade do not seem to have any influence on trade balance. While trade balance on oil is understood to have positive effect on balance of trade surplus, the other variables such as world's income, real exchange rate and Indonesia's gross domestic product follow as predicted by the theory very well. The coefficient of determination of 90% is quite high.

The coefficient of trade balance on oil (TBOILR) of 0.84 means that any increase in trade balance on oil by Rp1 trillion will increase

(total) surplus balance of trade by Rp0.84 trillion. An increase of world's income index (GDPWI) by 1% will increase trade balance surplus by Rp0.68 trillion. Negative sign on the coefficient of gross domestic product (GDPRL) indicating that import elasticity is greater than the elasticity of export in respect to income meaning that Rp1 trillion increase in domestic income will reduce the trade balance surplus by Rp0.52 trillion. The real effective exchange rate index variable (REER) shows that any depreciation of real exchange rate by 1% will increase the balance of trade surplus by Rp0.06 trillion.

The regression does not seem to suffer from serial correlation as indicated by value of Durbin Watson = 2.0. Testing on higher order serial correlation is assumed to be unnecessary as we are dealing with annual data.

The results of other tests such as normality test (Norm.), Ramsey Reset specification test (Reset), Heteroscedasticity test (Het.), and Theil's prediction test (Theil's coeff.) are as follows.

Test on normality of the residual using Jarque-Bera test allows us to accept the hypothesis of residual normality. Above all, estimating regression with single equation approach on the level with the variables on the right hand side of the equation which are not stationary, although cointegrated, they produce underestimates of the standard errors. This means that the *t*-tests are not reliable, even if the errors were normal[2)]. The important of normality is greater in the dynamic model, reported below, because there is no problem of non-stationary, and the *t*-tests are therefore more reliable.

Specification or functional form test result shows no mispecification error exists as shown by value of Ramsey's reset test of

0.14 which is smaller than its critical value with 5% and 1% level of confidence being 3.71 and 6.55 respectively.

Test on heteroscedasticity shows that no indication of heteroscedasticity exist. This is shown by either the first order of ARCH (autoregressive conditional heteroscedasticity) or the fifth order which respectively gives values of Obs*R-squared : 0.8647 smaller than its critical value $\chi^2_{(1,\ 0.05)}$= 3.841 and Obs*R-squared : 4.182 smaller than its critical value $\chi^2_{(5,\ 0.05)}$= 11.07.

Lastly the regression also have a quite good historical predictive power as indicated by low Theil's value of 0.07 and supported by Figure 7.1 above. More on other test results of predictive power can be seen at Appendix II.

## 7.4. Error Correction Model (ECM)

Having obtained the cointegrating regression produced in Table 7.2 above, it is legitimate for us to construct an error correction model. ECM, which represents a dynamic short-term equilibrium of the model, just like the long-run equilibrium, is estimated by applying 'general to specific' approach with one lagged residual of corresponding long-term equilibrium of balance of trade or cointegrating regression as the error correction term. The corresponding estimation result is presented in Table 7.4 below.

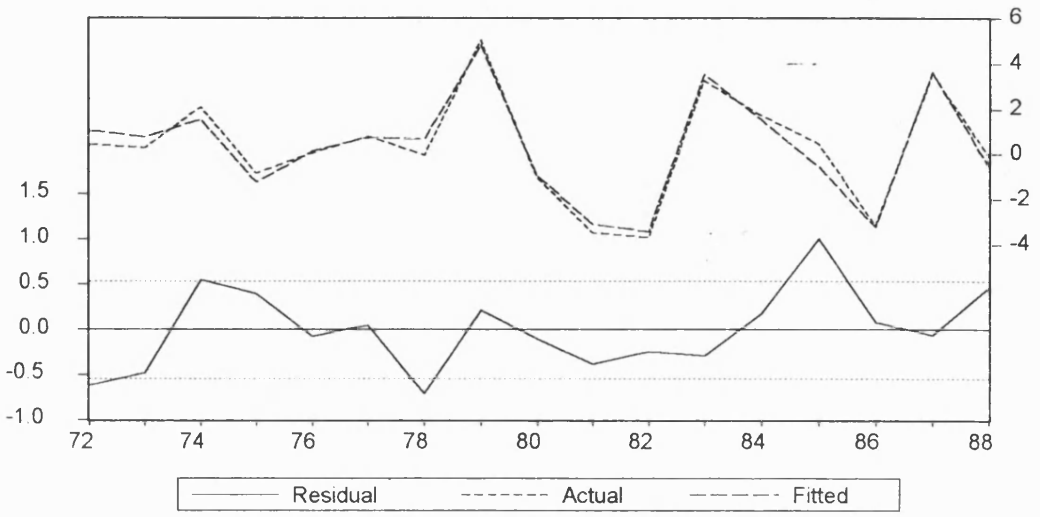
Table 7.4
Error Correction Model

| LS // Dependent Variable is DNX<br>Sample(adjusted): 1972 1988<br>Included observations: 17 after adjusting endpoints | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -0.717569 | 0.467854 | -1.533748 | 0.1533 |
| DTBOILR | 0.884280 | 0.082012 | 10.78238 | 0.0000 |
| DGDPWI | 0.772730 | 0.121042 | 6.383986 | 0.0001 |
| DREER | -0.022897 | 0.011623 | -1.970043 | 0.0745 |
| DGDPRL | -0.410938 | 0.122100 | -3.365584 | 0.0063 |
| RES1(-1) | -0.976082 | 0.272282 | -3.584826 | 0.0043 |
| R-squared | 0.965422 | Mean dependent var | | 0.325710 |
| Adj. R-squared | 0.949704 | S.D. dependent var | | 2.403516 |
| S.E. of regression | 0.539030 | Akaike info criterion | | -0.965406 |
| Sum squared resid | 3.196081 | Schwarz criterion | | -0.671330 |
| Log likelihood | -9.916007 | F-statistic | | 61.42372 |
| Durbin-Watson stat. | 1.569249 | Prob(F-statistic) | | 0.000000 |
| Norm.(2df); | $\chi^2_{(2)}$=0.55 | p=0.75 | | |
| Reset(p,n-p); | $F_{(3,9)}$= 0.85. | | | |
| Het.($n*R^2$) ; | $\chi^2_{(1)}$=0.7956 ; $\chi^2_{(5)}$=3.625 | | | |
| Theil's coeff.; | = 0.09 | | | |

The result appears to produce the same explanatory variables as that of the long run relationship, of the first difference, plus the lagged residuals of the cointegrating regression. The adjusted R-squared is larger than that of the long-run relationship, but the change in the real exchange rate is now significant only at 10% significance level, with Durbin Watson value in the indecisive area. The lagged residual variable is also highly significant.

The plot of the actual and fitted values of the estimation is shown on Figure 7.2 below and supported by low Theil's coefficient of 0.09. It shows that the estimation tracks quite well.

Figure 7.2
Error Correction Model

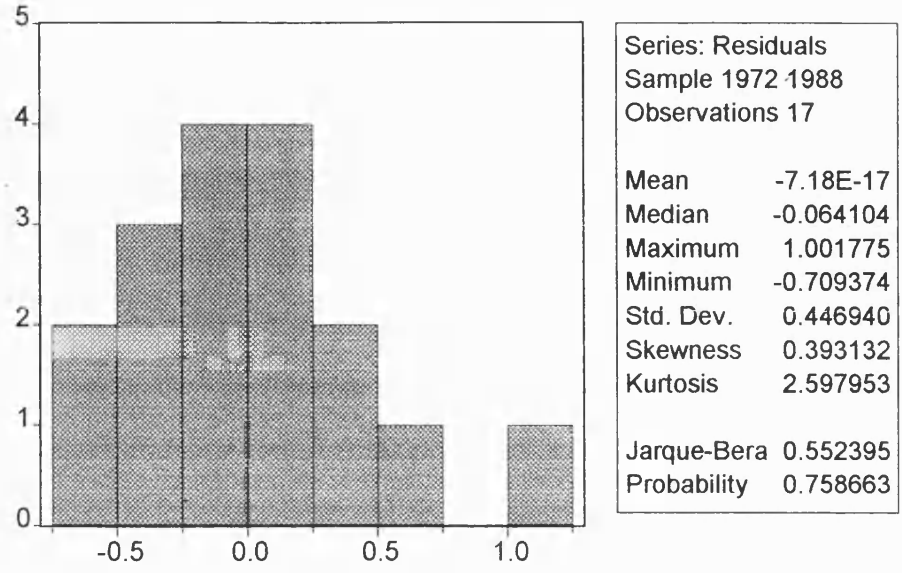



Test on the normality also gives relatively good result as shown on Figure 7.3 below with low Jarque-Bera value of 0.55 and its probability relatively high: 75%.

Test on specification test yields that F-statistics of 0.85, lower than its critical value $F_{0.05}(3,9) = 3.86$, indicating no functional or specification error.

Test on heteroscedasticity at 5% level of significance, represented by value of Obs*R-squared : $0.7956 < \chi^2_{(1,\ 0.05)} = 3.841$ for the first order and Obs*R-squared : $3.625 < \chi^2_{(5,\ 0.05)} = 11.07$ for the fifth order, show no heteroscedasticity problem exists.

Figure 7.3
Jarque-Bera normality test




What we can infer from error-correction model above is that the coefficient of the lagged residual of 0.97 tells the proportion of the disequilibrium in balance of trade in one period is corrected in the next period. In other words about 0.97 (almost one) of the discrepancy between the actual and the long-run or equilibrium value of trade balance, is eliminated or corrected in one year.

## 7.5. Mundell-Fleming Model: An Application in Indonesia

Chapter II discusses various theoretical approaches to balance of payment, and it is suggested that Mundell-Fleming approach is regarded to be relevant or suitable for analyzing Indonesian economy considering that Indonesia is a small open economy, adopting fixed real exchange rate and open capital account system.

Referring to estimation results, it is shown that during the period 1971-1988, monetary expansion represented by net domestic credit

variable of the monetary authorities has no impact on trade balance. However, after 1988, from a simple empirical illustration which will be presented here, we will see how Mundell-Fleming approach can be used or applied to analyze Indonesia's short-run macro economic development. The differences between the illustration presented in this section and the regression estimation in the previous section, are that the first is using concept of net foreign assets of the monetary system instead of balance of trade and net domestic credit of monetary system instead of net domestic credit of the monetary authorities.

By definition, the change in net foreign assets of monetary system is equal to the change in net foreign assets of deposit money banks plus the change in net foreign assets of monetary authorities, the latter being the sum of trade balance and net factor income (NFI) (See Chapter VI. Section 6.1.1). Meanwhile, (the change in) net domestic credit of monetary system is equal to (the change in) net domestic credit of monetary authorities plus (the change in) net domestic credit of deposit money banks. The ratio of the last two variables is known as credit multiplier.

To begin with, it is assumed now that economy is initially equilibrium in the late 1989. See Table 7.5 below.

Table 7.5
Selected monetary indicators

| | M2 (1) | DC (2) | NFA (3) | %M2 (4) | %DC (5) | dNDC (6) | dNFA (7) | i (8) |
|---|---|---|---|---|---|---|---|---|
| 1988 | | | | | | | | |
| March | 35.66 | 29.886 | 19.005 | - | - | - | - | na |
| June | 37.901 | 33.122 | 18.029 | - | - | 3.236 | -0.976 | na |
| Sept. | 40.07 | 38.348 | 17.196 | - | - | 5.226 | -0.833 | na |
| December | 42.073 | 40.835 | 17.892 | - | - | 2.487 | 0.696 | 18.17 |
| 1989 | | | | | | | | |
| March | 47.567 | 41.7 | 18.608 | 33.4 | 39.53 | 0.865 | 0.716 | 18.47 |
| June | 47.6 | 43.174 | 16.601 | 25.59 | 30.35 | 1.474 | -2.007 | 18.13 |
| Sept. | 55.411 | 53.453 | 17.355 | 38.29 | 39.39 | 10.279 | 0.754 | 17.70 |
| December | 58.526 | 60.564 | 18.279 | 39.11 | 48.31 | 7.111 | 0.924 | 17.21 |
| 1990 | | | | | | | | |
| March | 64.367 | 69.677 | 12.405 | 35.03 | 67.09 | 9.113 | -5.874 | 16.32 |
| June | 78.477 | 82.526 | 8.726 | 64.86 | 91.15 | 12.849 | -3.679 | 15.54 |
| Sept. | 76.907 | 91.099 | 6.425 | 38.79 | 70.4 | 8.573 | -2.301 | 16.95 |
| December | 84.63 | 95.896 | 10.659 | 44.6 | 58.4 | 4.797 | 4.234 | 19.41 |

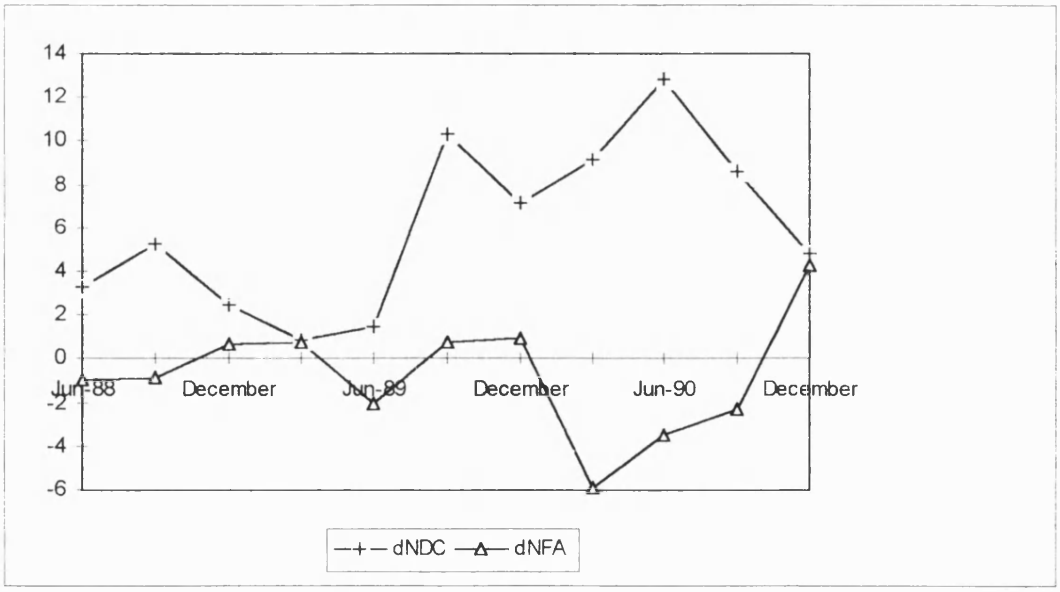
*Note* :
col. (1) : broad money in trillion rupiahs, end of period
col. (2) : net domestic credit of monetary system in trillion rupiahs, end of period
col. (3) : net foreign assets of monetary system in trillion rupiahs, end of period
col. (4) : annual growth rate of broad money
col. (5) : annual growth rate of net domestic credit
col. (6) : change in net domestic credit
col. (7) : change in net foreign assets
col. (8) : 6-month time deposit rate
Source : International Financial Statistics (IFS), IMF.

In the mid-1990, to stimulate economy, the government had been conducting expansionary monetary policy, shown by annual growth rate of domestic credit that increased by 67.09% in the first quarter and by 91.15 % in the second quarter (col. 5), compared to the previous annual growth rate averaging below 50.0%. Money supply also increased by 35% and 65% in the first and second quarter (col. 4). In term of Figure 2.4. in Chapter II, LM curve shifts to the right, pushing down interest rate to 16.3% and 15.54% percent from an average of 17%-18% (col. 9). As the interest rate went down, there were huge net capital outflows

amounting Rp5.9 trillion in the first quarter and Rp3.7 billion in the second quarter (col.7), and real exchange rate tend to depreciate. As the government did not let real exchange rate depreciate further, it slowed down the annual rate of growth of domestic credit and money supply in the second half of 1990; diagramatically, LM curve moves back to the initial position. Interest rate went up, capital flowed in, and real exchange rate tend to appreciate.

Figure 7.4 below depicts the movement of changes in domestic credit *vis-à-vis* changes in net foreign assets. The figure implies a close (negative) relationship between the two, though not in an exact way. This seems to conform to the value of the offset coefficient of less than one, around 0.48 and 0.60, discussed in Chapter II section 2.9.

Figure 7.4
Change of net foreign assets and net domestic credits of monetary systems



This observation suggests that under fixed exchange rate system and open capital account as proposed by Mundell-Fleming approach, as well as monetary approach to balance of payments, monetary policy is not effective and money supply is endogenously determined.

## 7.6. Policy implications

The estimation results substantiate the fact that Indonesian economy is an oil economy. Although the role of oil is now decreasing, the economy had been very buoyant on the oil glut. The regressions results for the period 1971-1988, both in the long-run and the short-run confirm this, shown by high coefficient of trade balance surplus of oil in the long-run of 0.84 and in the short-run of 0.88. It is, therefore, not surprising, that under the period of the study, the regression shows that there was a structural-break mainly due to the oil-price fall and the government responses to facing a new environment of global macro-economy. In adjusting to the sharp drop of oil prices in 1986, the government launched immediate and intensified trade reforms (See Chapter III, section 3.2. and 3.6.). It can be re-emphasized again that under trade liberalization in October 1986, 544 items were exempted from the import license requirement. Restrictions on certain exports were lifted. By the end 1987 the proportion of CCCN items covered by import licensing had fallen to 22 percent from 32 percent in mid-1986. In November 1988, the license on many "big-ticket" import items were revoked and the result was that at the end of 1988 the proportion of CCCN items covered was reduced to 16 percent. In January 1989, there were revisions of the tariff schedule to reduce the dispersion of tariff

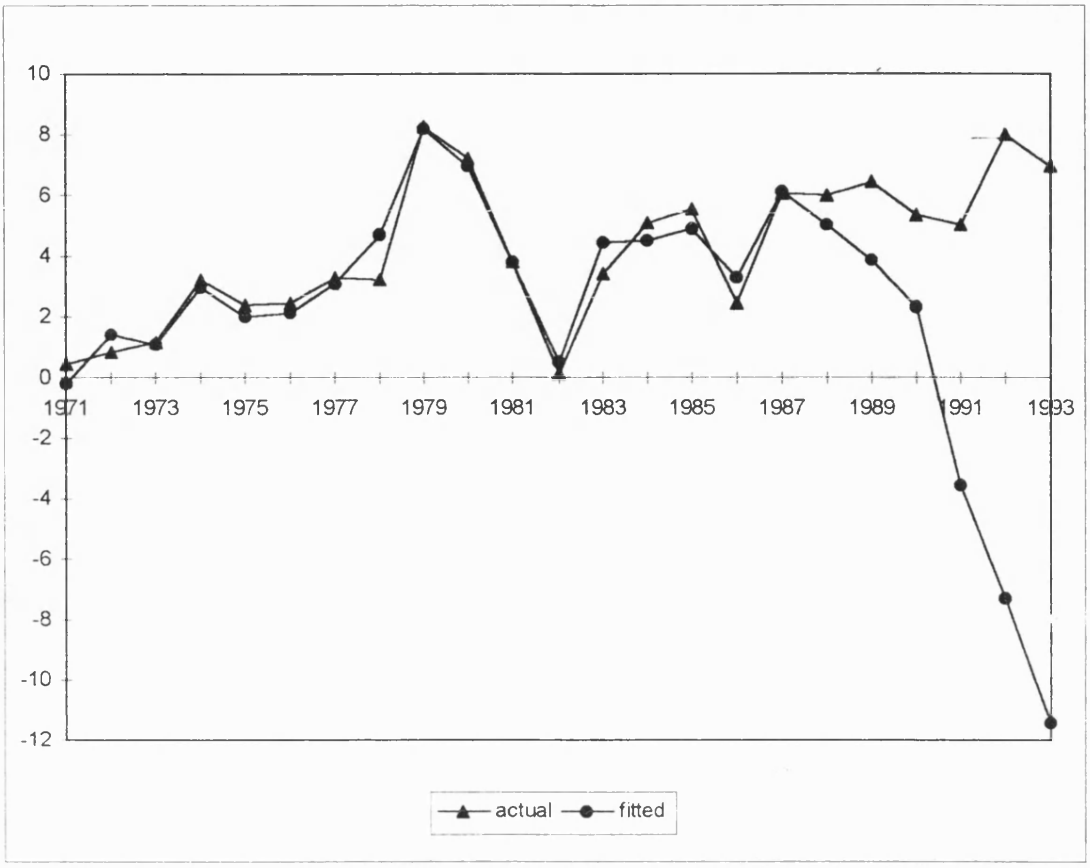
rates and to leave the average tariff unchanged so that rendering more uniform protections[3)].

The overall effects of these policies were:

- the share of total production subject to non-tariff barriers (NTBs) fell from 41 percent at the end of 1986 to 38 percent at the end of 1987 and to 22 percent in June 1991;
- the production-weighted tariff fell from 19 percent in 1989 to 15 percent in June 1991;
- the effective tariff ceiling was lowered progressively from about 60 percent in 1985 to 30 percent in June 1991.

One important implication of these liberalization measures, in addition to improving the competitiveness of the economy, is that import got a big boost by the reduction in the landed cost of imports. So that apart from the expansion of aggregate demand, imports would therefore have been expected to respond positively to the reduction in the relative price. In the meantime, exports responded even more, so that trade balance surplus improved significantly. Had there been no trade reforms, others remain the same, the trade balance surplus since 1987-1988 would have fallen, as shown by simulated or fitted line on the following figure.

Figure 7.5
Actual and fitted simulation of trade balance




Oil price fall and mitigated by major trade liberalization measures taking place around 1986-1988, have undoubtedly become the underlying factors of the structural break in the estimation.

The expected variables, in which the government might have exercised its influence on balance of trade: budget surplus and domestic credit, at least through their direct effects, under the period of the study have no impacts on balance of trade. The findings do not lend support to fiscal approach to balance of payments and seem parallel with the general conclusion of studies conducted by the World Bank on the effect of public sector deficit on macro-economic performance within eight developing countries. The empirical evidences of the studies find fiscal

adjustment and its consequences are complex. In some countries deficits result in high and variable inflation, in others, result in a debt crisis. In still others, moderately high deficits seem not to generate any macro imbalance whatsoever. The ways of financing affect the correlation of fiscal deficits with macro-economic performance[4)].

And in the case of Indonesia, fiscal policy through "balanced" budget has proven to be successful in maintaining price stability and promoting development. In Chapter IV section 4.3.5. we saw how government had been skillfully adjusting its budget in conjunction with the development of domestic credit or monetary sector. And a striking feature of Indonesian fiscal policy - avoiding domestic monetary financing to finance the deficit - has been contributing to sustainable balance of payment deficit and moderate inflation.

However, it would be misleading to assume that incautious and imprudent fiscal policy, i.e. foreign borrowing and monetary policy will have no negative effects on balance of trade or balance of payments. The following discussion underlines the importance of those policies.

As regards with fiscal or budget policy, particularly related with official foreign borrowing, in the last few years there have been precarious sizable net official resource outflow in the government sector during 1987-1992 (Table 7.6 below), in contrast to what had been happening before. In other words, net official resource inflows since 1987 have been negative. In 1990, for example government interest payment was US$(-)2.88 billion which was greater than net official capital inflow (foreign borrowing) amounting US$0.60 billion, so that net official resource outflow was US$2.28 billion.

Table 7.6
Indonesia's Balance of Payments:
Non-interest current account and interest payments
(billion US $)

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|
| Non int.curr.acc (NICA) | -1.62 | 0.53 | 1.67 | 1.98 | 0.11 | -0.64 | 0.84 |
| Interest payments | -2.48 | -2.80 | -3.22 | -3.26 | -3.35 | -3.75 | -3.96 |
| -Govt | -2.18 | -2.47 | -2.86 | -2.81 | -2.88 | -2.90 | -3.06 |
| -Private | -0.30 | -0.33 | -0.36 | -0.45 | -0.47 | -0.85 | -0.90 |
| Current acc | -4.10 | -2.27 | -1.55 | -1.28 | -3.24 | -4.39 | -3.12 |
| Current acc | 4.10 | 2.27 | 1.55 | 1.28 | 3.24 | 4.39 | 3.12 |
| Net off. cap.infl. | 3.10 | 2.10 | 2.00 | 2.80 | 0.60 | 1.40 | 1.10 |
| Net private cap.infl. | 1.30 | 1.50 | 0.40 | 0.30 | 4.10 | 4.40 | 5.40 |
| Monetary movement | 0.50 | -1.20 | 0.3 | -0.4 | -2.1 | -1.2 | -1.7 |
| Error &Ommission | -0.80 | -0.20 | -1.1 | -1.4 | 0.64 | -0.2 | -1.6 |
| *Addendum* | | | | | | | |
| Net off. Resource inflow (Net off.cap.infl.-Govt.int.pay). | 0.92 | -0.37 | -0.86 | -0.01 | -2.28 | -1.50 | -1.96 |

*Source* : Calculated from Bank Indonesia's "*Balance of Payments Statistics*".

From the table above we can get an equation as follows:

| NICA | + | Interest payments | = | Net capital inflows |
|---|---|---|---|---|

NICA is non interest current account (that is total current account minus all interest payments), which is balance of trade of goods and services (out of interest payment). Net capital inflows consist of three broad categories: reserve decumulation (represented by monetary movement and error & omission), net private capital inflows (including direct foreign investment inflows) and net official capital inflows. Official and private capital inflows also include short term and medium term borrowing which is often called "new money". While net official (private) capital itself is gross official (private) foreign borrowing minus principal payments. For example, in 1990 total interest payments was US$(-)$3.35 billion and NICA was US$0.11 billion and their sum, which is current account deficit, was equal to US$(-)3.24. This current

account deficit was financed by net official capital inflow, US$0.60 billion, plus net private capital inflow US$4.10 billion, plus monetary movement US$(-)2.1 billion and plus error and omission US$0.64 billion.

Taking out net official capital inflow (foreign borrowing) from the right side and putting it on the left side of the equation, and inserting their corresponding values for 1990, we get:

| Net official capital inflow (foreign-borrowing) - (0.60) | govern-ment interest payments (2.88) | = | NICA + (0.11) | Net private capital inflow (4.10) | - | private interest payments (0.47) | + | reserve decumulation (-1.46) |
|---|---|---|---|---|---|---|---|---|

The left side of the equation is net resource inflow in the government sector, which is nothing but net resource inflow budget surplus (NRIBS) in our regression estimation. Here we can see there are three sources of financing for the deficit (net resource outflow in the government sector) which are NICA, net private resource inflows (net private capital inflows-interest payments) and reserve decumulation. From 1987 until 1989, net resource outflow in the government sector had been sufficiently financed by non interest current account surplus (NICA). But in 1990 and in 1992, only a small part of net resource outflow in the government sector had been financed by NICA. In 1991 the situation was even worse, NICA was negative.

From the equation above, we can see that given the current account, the larger the net outflow of resources in the government sector (indicated by negative number in the left side of the equation above), the larger the NICA, or net private resources inflow, or reserve

decumulation, or their sum will be needed. Considering that net private resource inflows can not be unlimited and reserve decumulation should not be below the safe limit, so that the stock has to be kept enough for, more or less, three months of imports, the only safety valve left is therefore NICA, that is trade balance and services (out of interest payments). Realizing that trade balance on services (out of interest payments), in the Indonesian history has always been deficit (negative), and oil export can not be relied upon any more, the most plausible solution seems to be maintaining non oil export and controlling import at a sustainable level. The bad news is, that based on our regression estimation, trade balance either in the long run and the short run are very much affected by trade balance on oil and world's income growth. Both are beyond the control of the government. In addition, domestic income had a negative impact on balance of trade surplus.

The only policy variables left to the government, a policy which can be assigned to control this balance of trade, based on our findings, is the real exchange rate coupled with favourable trade climates. Meanwhile, of course, to check foreign borrowing itself under control: be it the amount, the effectiveness, and the efficiency of the uses, is unavoidable. The central massage is then government should be more cautious and more efficient in using foreign borrowing.

In the mean time as regard to monetary policy, the illustration through data observation on the applicability of Mundell-Fleming approach on later period, suggests that monetary policy has to be conducted in such a way that will not encourage capital outflow. Although based on the estimation results, the findings show that net domestic credit (monetary authorities) does not have any impact on

trade balance (merchandise balance), the observation on the relationship between the expansion of net domestic credit (monetary system) and the contraction of foreign reserve/assets in later period seem to prove the endogeneity of the money supply or monetary policy: a piece of evidence supporting the applicability of monetary approach to the balance of payment as well as Mundell-Fleming model in Indonesia.

Finally, the most important thing is to control the real exchange rate, that is how the policy is directed to keep the real exchange rate level at a competitive rate. The task of achieving the proper real exchange rate falls on the domestic price level and the nominal exchange rate. Either one will become unavoidable target. If the nominal exchange rate is not allowed to move, because the government wants to control it at a predetermined level, the burden of adjustment falls entirely on domestic prices. Conversely, if domestic inflation are let free to move, incompatible with the required real exchange rate, the nominal exchange rate will have to adjust. Checking inflation under control, as always, is not as easy as depreciating the nominal exchange rate - just by a strike of a pen. High inflation is always harmful to the economy: it discourages investment and encourages capital outflow. Here lie the challenges.

## 7.7. Conclusion

The estimation results show that neither budget surplus nor domestic credit has any impact on balance of trade surplus. The empirical results also show that trade balance on oil, world's income growth, domestic income and real exchange rate both in the long-run and in the short-run have significant effects on balance of trade surplus.

The results confirm the importance of oil in the Indonesian economy, at least during the period of estimation. World's income growth as well as domestic income have significant impacts on balance of trade. The former gives positive impact on balance of trade, while the latter gives negative impact, meaning the import elasticity is greater than export elasticity. The effects of domestic income and real exchange rate on balance of trade surplus follow the theory very well.

While we can be confident that the findings do not support the fiscal approach on balance of payments, monetary approach to balance of payments and Mundell-Fleming model seem to find their applicability in Indonesia, basing on theoretical justification and empirical grounds.

The estimation results also imply that the policy variable left to the government to affect balance of trade surplus, is the real exchange rate. However, the existence of structural break, affirming the changes in the parameters in the equations to be estimated, also verify that oil prices, *ceteris paribus*, have played an important role in imparting on trade balance surplus. It is also probable this effect has been mitigated by the successful application of policy reforms particularly with respect to trade.

Table 7.7
Some Selected Data Of Indonesia's Economy
In Nominal Terms

| Fiscal Year (1) | Nominal Balance of Trade (2) | Nominal Net Resource Inflow Budget Surplus (3) | Nominal Primary Budget Balance Surplus (4) | Nominal Trade Balance Surplus on Oil (5) |
|---|---|---|---|---|
| 1971/72 | 0.051000 | -0.065000 | -0.081000 | 0.186000 |
| 1972/73 | 0.120000 | -0.122000 | -0.102000 | 0.334000 |
| 1973/74 | 0.224000 | -0.167000 | -0.143000 | 0.518000 |
| 1974/75 | 0.867000 | -0.118000 | -0.143000 | 1.609000 |
| 1975/76 | 0.721000 | -0.839000 | -0.429000 | 1.802000 |
| 1976/77 | 0.847000 | -0.990000 | -0.603000 | 1.908000 |
| 1977/78 | 1.243000 | -0.563000 | -0.270000 | 2.433000 |
| 1978/79 | 1.431000 | -0.808000 | -0.517000 | 2.786000 |
| 1979/80 | 4.880000 | -1.487000 | -0.347000 | 6.058000 |
| 1980/81 | 5.419000 | -2.578000 | -0.702000 | 8.538000 |
| 1981/82 | 3.235000 | -0.839000 | -0.708000 | 8.852000 |
| 1982/83 | 0.119000 | 0.070000 | -0.511000 | 6.996000 |
| 1983/84 | 3.454000 | -2.887000 | -0.667000 | 10.77800 |
| 1984/85 | 5.745000 | -0.167000 | 2.711000 | 11.75100 |
| 1985/86 | 6.947000 | 1.870000 | 0.671000 | 11.42200 |
| 1986/87 | 3.168000 | -2.599000 | -1.096000 | 6.871000 |
| 1987/88 | 8.890000 | 4.222000 | 2.398000 | 10.69500 |
| 1988/89 | 9.408000 | -0.086000 | 0.015000 | 9.502000 |
| 1989/90 | 11.02200 | 1.397000 | 1.457000 | 11.62300 |
| 1990/91 | 9.560000 | 1.010000 | 5.830000 | 17.16300 |
| 1991/92 | 9.694000 | 3.137000 | 5.544000 | 14.92800 |
| 1992/93 | 16.34500 | 4.290000 | 4.290000 | 14.15100 |
| 1993/94 | 15.51000 | 6.808000 | 8.362000 | 11.60200 |

Note:
1) Columns 2, 3, 4, 5, 7, 8 are in trillion rupiahs at market prices.
2) Column 6 is Rp per US$1, end of period.
3) Columns 7 and 9 are calculated based on the quarterly method interpolation discussed in Appendix I

*Sources:*
- Bank Indonesia's *Indonesia Balance of Payment Statistics.*
- Bank Indonesia's *Indonesia Financial Statistics.*
- Indonesia's Central Bureau of Statistics Publications.

Table 7.7
Some Selected Data Of Indonesia's Economy
In Nominal Terms
(continued)

| Fiscal Year | Nominal Exchange Rate | Nominal Gross Domestic Product | Change of Nominal Net Domestic Credit of Monetary Authorities to the Domestic Sector | GDP Deflator 1983=100 |
|---|---|---|---|---|
| (1) | (6) | (7) | (8) | (9) |
| 1971/72 | 405.7500 | 4.045984 | 0.179906 | 0.118359 |
| 1972/73 | 415.0000 | 5.220013 | -0.180206 | 0.138620 |
| 1973/74 | 415.0000 | 8.124992 | 0.070243 | 0.195120 |
| 1974/75 | 415.0000 | 11.87299 | 0.539766 | 0.267211 |
| 1975/76 | 415.0000 | 13.95799 | 0.659592 | 0.298458 |
| 1976/77 | 415.0000 | 17.16302 | 0.351617 | 0.341376 |
| 1977/78 | 415.0000 | 20.74702 | -0.189782 | 0.379565 |
| 1978/79 | 491.8800 | 25.91801 | 1.021561 | 0.442234 |
| 1979/80 | 626.5700 | 37.01100 | -0.300490 | 0.589197 |
| 1980/81 | 626.9800 | 51.57701 | -0.478430 | 0.747547 |
| 1981/82 | 636.5000 | 62.50501 | 1.389019 | 0.852159 |
| 1982/83 | 674.1000 | 68.29101 | 2.348804 | 0.910389 |
| 1983/84 | 983.3800 | 80.41802 | -1.284617 | 1.019537 |
| 1984/85 | 1049.450 | 94.17201 | -0.867011 | 1.125988 |
| 1985/86 | 1146.450 | 108.2340 | 1.811792 | 1.249512 |
| 1986/87 | 1410.600 | 118.9850 | 2.424244 | 1.296387 |
| 1987/88 | 1649.000 | 142.8990 | 3.227241 | 1.473626 |
| 1988/89 | 1706.530 | 164.1240 | 3.783403 | 1.576418 |
| 1989/90 | 1707.230 | 191.4080 | 8.983735 | 1.701465 |
| 1990/91 | 1868.950 | 220.0330 | -10.13557 | 1.784432 |
| 1991/92 | 1973.850 | 257.7110 | -8.653451 | 1.927272 |
| 1992/93 | 2046.700 | 293.1549 | -0.695781 | 2.046414 |
| 1993/94 | 2102.500 | 358.5291 | 1.250171 | 2.232449 |

Note:
1) Columns 2, 3, 4, 5, 7, 8 are in trillion rupiahs at market prices.
2) Column 6 is Rp per US$1, end of period.
3) Columns 7 and 9 are calculated based on the quarterly method interpolation discussed in Appendix I

*Sources:*
- Bank Indonesia's *Indonesia Balance of Payment Statistics.*
- Bank Indonesia's *Indonesia Financial Statistics.*
- Indonesia's Central Bureau of Statistics Publications.

Table 7.8
Some Selected Data Of Indonesia's Economy
In Real Terms

| Fiscal Year (1) | Real Balance of Trade (2) | Real Net Resource Inflow Budget Surplus (3) | Real Primary Budget Balance Surplus (4) | Income - Term of Trade Index (5) | Real Trade Balance Surplus on Oil (6) |
|---|---|---|---|---|---|
| | NX | NRIBS | PBBS | TOTY | TBOILR |
| 1971/72 | 0.430892 | -0.549177 | -0.684359 | 15.64300 | 1.571490 |
| 1972/73 | 0.865676 | -0.880104 | -0.735825 | 20.74300 | 2.409465 |
| 1973/74 | 1.148011 | -0.855884 | -0.732882 | 33.10800 | 2.654777 |
| 1974/75 | 3.244627 | -0.441599 | -0.535158 | 47.77300 | 6.021459 |
| 1975/76 | 2.415750 | -2.811116 | -1.437388 | 41.76700 | 6.037700 |
| 1976/77 | 2.481135 | -2.900028 | -1.766381 | 48.87800 | 5.589145 |
| 1977/78 | 3.274801 | -1.483277 | -0.711341 | 57.62900 | 6.409969 |
| 1978/79 | 3.235843 | -1.827087 | -1.169064 | 63.46200 | 6.299832 |
| 1979/80 | 8.282459 | -2.523774 | -0.588937 | 88.09600 | 10.28179 |
| 1980/81 | 7.249043 | -3.448613 | -0.939071 | 108.7430 | 11.42136 |
| 1981/82 | 3.796240 | -0.984558 | -0.830831 | 102.0180 | 10.38773 |
| 1982/83 | 0.130713 | 0.076890 | -0.561299 | 94.34200 | 7.684627 |
| 1983/84 | 3.387812 | -2.831678 | -0.654219 | 98.82800 | 10.57147 |
| 1984/85 | 5.102186 | -0.148314 | 2.407663 | 80.16100 | 10.43617 |
| 1985/86 | 5.559771 | 1.496584 | 0.537010 | 52.07800 | 9.141169 |
| 1986/87 | 2.443715 | -2.004803 | -0.845427 | 58.61000 | 5.300115 |
| 1987/88 | 6.032738 | 2.865042 | 1.627279 | 84.60800 | 7.257608 |
| 1988/89 | 5.967960 | -0.054554 | 0.009515 | 92.24800 | 6.027589 |
| 1989/90 | 6.477947 | 0.821057 | 0.856321 | 117.3990 | 6.831172 |
| 1990/91 | 5.357447 | 0.566006 | 3.267146 | 147.7040 | 9.618187 |
| 1991/92 | 5.029908 | 1.627689 | 2.876605 | 163.7310 | 7.745663 |
| 1992/93 | 7.987142 | 2.096350 | 2.096350 | 161.4240 | 6.915023 |
| 1993/94 | 6.947527 | 3.049566 | 3.745662 | 152.6440 | 5.196983 |

Note:
1) Data above are all the variables used in the regression estimations
2) All data are based on 1983's constant price.
3) Columns 5 is calculated based on the quarterly method interpolation discussed in Appendix I

*Sources:*
- Bank Indonesia's *Indonesia Balance of Payment Statistics.*
- Bank Indonesia's *Indonesia Financial Statistics.*
- Indonesia's Central Bureau of Statistics Publications.
- J. P. Morgan Co.

Table 7.8
Some Selected Data Of Indonesia's Economy
In Real Terms
(continued)

| Fiscal Year | World's Real Income Growth _Index | Real Effective Exchange Rate Index | Real Gross Domestic Product | Change of Real Net Domestic Credit of Monetary Authorities to the Domestic Sector |
|---|---|---|---|---|
| (1) | (7) | (8) | (9) | (10) |
| | GDPWI | REER | GDPRL | NDCMA |
| 1971/72 | 70.23300 | 93.63000 | 34.18400 | 1.520000 |
| 1972/73 | 74.16600 | 92.71000 | 37.65700 | -1.300000 |
| 1973/74 | 77.58300 | 105.9300 | 41.64100 | 0.360000 |
| 1974/75 | 78.16400 | 104.5500 | 44.43300 | 2.020000 |
| 1975/76 | 79.37900 | 113.8300 | 46.76700 | 2.210000 |
| 1976/77 | 83.68600 | 124.0400 | 50.27600 | 1.030000 |
| 1977/78 | 87.44100 | 124.2700 | 54.66000 | -0.500000 |
| 1978/79 | 91.11000 | 103.4500 | 58.60700 | 2.310000 |
| 1979/80 | 93.92300 | 96.01000 | 62.81600 | -0.510000 |
| 1980/81 | 95.87100 | 100.9000 | 68.99500 | -0.640000 |
| 1981/82 | 97.10300 | 114.8900 | 73.34900 | 1.630000 |
| 1982/83 | 97.90300 | 125.7600 | 75.01300 | 2.580000 |
| 1983/84 | 100.9550 | 101.9200 | 78.87700 | -1.260000 |
| 1984/85 | 105.3420 | 107.6200 | 83.63500 | -0.770000 |
| 1985/86 | 109.1570 | 100.6800 | 86.62100 | 1.450000 |
| 1986/87 | 113.1250 | 74.27000 | 91.78200 | 1.870000 |
| 1987/88 | 117.9140 | 63.62000 | 96.97100 | 2.190000 |
| 1988/89 | 123.1820 | 62.47000 | 104.1120 | 2.400000 |
| 1989/90 | 126.9720 | 63.35000 | 112.4960 | 5.280000 |
| 1990/91 | 129.4050 | 60.95000 | 123.3070 | -5.680000 |
| 1991/92 | 131.2000 | 62.60000 | 133.7180 | -4.490000 |
| 1992/93 | 133.9600 | 61.50000 | 143.2530 | -0.340000 |
| 1993/94 | 143.4270 | 62.51000 | 160.5990 | 0.560000 |

Note:
1) Data above are all the variables used in the regression estimations
2) All data are based on 1983's constant price.
3) Columns 7 and 9 are calculated based on the quarterly method interpolation discussed in Appendix I

*Sources:*
- Bank Indonesia's *Indonesia Balance of Payment Statistics.*
- Bank Indonesia's *Indonesia Financial Statistics.*
- Indonesia's Central Bureau of Statistics Publications.
- J. P. Morgan Co.

# FOOTNOTES AND REFERENCES TO CHAPTER VII

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[1] Perron, P., "The Great Crash, The Oil Price Shock and The Unit Root Hypothesis",
Econometrica, Vol. 57, 1989, pp.1361-1401.

[2] R.I.D. Harris, "Using Cointegration Analysis in Economic Modelling", Prentice Hall, 1995, pp. 62-63.

[3] "Macroeconomic Policies, Crises, and Growth in Indonesia, 1965-1990", Wing Thye Woo, Bruce Glassburner, Anwar Nasution, Comparative Macroeconomics Studies, The World Bank, Washington, D.C., 1994, pp. 115-116.

[4] "Public Sector Deficits and Macroeconomic Performance," edited by Easterly, William, Carlos Alfredo Rodriguez and Klaus Schmidt-Hebbel, Published for the World Bank, Oxford University Press, 1994.

# CHAPTER VIII:

# CONCLUSION

This chapter provides the summary and conclusion of the research. In Chapter I we start with the aims, scope and limitation of the study. Chapter II discusses theoretical approaches to balance of payments and impact of budget deficit on balance of payments. In this Chapter it is also suggested that Mundell-Fleming based policy approach - fiscal policy assigned to promote income and employment and monetary approach to maintain external balance, considering Indonesian economy's characteristics, suitable for Indonesia. This is due to given the fact that Indonesia is a small open economy, adopting fixed exchange rate system and open capital account. By inferring this, it should not be necessarily interpreted that monetary policy is not important. On the contrary, it supports balance of payments by protecting foreign reserves through prudent monetary and credit policy, and maintaining price stability. The challenge being to ensure that money supply expands in line with demand.

The Indonesia's uniqueness in applying in a reverse sequence of the deregulations to that suggested by the theories, that is by opening capital account in advance, have attracted foreign capital and widen economic opportunities for domestic economy. Although Indonesia's open capital account limits the effectiveness of monetary policy, it should be maintained as it has several benefits. Not only it stimulates foreign investments, but also will always necessitate that the government be committed to a prudent macroeconomic management. It is, therefore, a barometer of macroeconomic policy, in which a loosening of monetary policy would

quickly be reflected in capital outflows. Nevertheless, it is also difficult for a country to close capital account, given the high mobility of international capital flows nowadays.

In the mean time, the flexibility of budget policy in Indonesia in the form of assets built up or drawndown to smooth out government expenditure, especially in the era of oil buoyancy, has proven to be facilitating the efforts to checking inflation and managing sustainability of balance of payments.

In Chapter III and IV, we discuss how Indonesia's economy has been subject to episodes of overheating and subsequent policy adjustments that have been implemented due to the rises and falls of oil price, world's economy recession, and US dollar depreciation. After economic setback in the mid-1980, the result of financial and other policy adjustments in almost all sectors, indicating impressive achievements, characterised by strong economic expansion in the late 1980s, especially non-oil output and export, rising and high levels of savings and investments, strong growth in manufacturing and substantial build-up in international reserves. Nevertheless, economic development in Indonesia - which by far has the largest population - remains lag behinds its neighbouring countries, in terms of per-capita income; its external debt and inflation are relatively high and has always been in fiscal deficit.

With regard to the fiscal deficit which is the main topic of Chapter V, it is found that many concepts of budget or fiscal deficit proposed. Each concept has advantages and disadvantages which to a large extent depend on the purpose of the study and the availability of the data. Considering the aims of the study, characteristics and availability of the data the IMF and the World Bank's concept of budget deficit seems to be the most suitable

and appropriate for this purpose. Yet some tests and derivation on the data are unavoidable and painstaking.

Our statistical findings in Chapter VII, after being preceded with the discussion on empirical model in Chapter VI, suggest that the Indonesia's state "balanced" budget, has no impact on the trade balance both in the long run and the short run. The findings do not lend support to fiscal approach to the balance of payment. In the mean time through practical empirical observation in a short later period, the result finds the relevance of the monetary approach to the balance of payments as well as Mundell-Fleming policy approach in Indonesia.

Surplus of trade balance on oil in the 1970s and until mid-1980s, no doubt had played very significant role in the Indonesian economy and exports. In the mean time world's income growth, real exchange rate and domestic income, all as expected by the theories have impacts on trade balance in the long run and in the short run. World's oil prices which will definitely affect Indonesia's balance of trade surplus on oil, as well as world's income growth, are beyond the control of government.

Although the findings show that budget deficit has no detrimental direct effect on trade balance, verifying that "twin deficits" do not exist in Indonesia by no means government should not do sensible policy on foreign borrowing. The sizeable net resource transfer outflow for debts and interest payments in the last few years seem to have persistently continued until present and draws close supervisions. The clear message of the findings is that government has to be consistently more cautious and efficient in the implementations of foreign borrowing. It is indeed therefore, becomes very demanding exercise to monitor and scrutinise the external debt sustainability. Although budget deficit has no impact on trade

balance, some studies revealed that public investment often crowds out private investment; typically, when public enterprises compete with private firms.

The policy variables left to the government to affect balance of trade in the period of the study and in the period to come is to keep the real exchange rate at a competitive rate and to create always favourable trade climates. The task of achieving the proper real exchange rate falls on the domestic price level and the nominal exchange rate, in which controlling the former is not as easy as adjusting the later.

The main policy implications being the pressure to the government to promote non oil-exports, restrain imports, mobilise domestic savings and consistently maintain competitive exchange rate would have become inevitably more compelling and daunting tasks in the future.

# APPENDIX I

## STATISTICAL ISSUES AND DATA DERIVATION

This section discusses the availability, characteristics, sources and derivation of data which are used in this study. The resources are mainly taken from the Annex V of Indonesia - Staff Report for the 1995 Article IV Consultation, IMF, June 23, 1995, Indonesia's official publications, and discussion with the authorities.

Below are some excerpts from the IMF staff report which give us good background and understanding, related to this study on Indonesia's statistical (data) issues.

### I. Data characteristics and sources

I. 1. Real sector data :

- BPS (Indonesia's Statistical Office) believes that *household consumption* and *imports of non-factor services* may be underestimated.
- *Investment* data are available only in *aggregate* form, with no division between the private and public sectors. *Stock changes* are calculated as a residuals (which in recent years has been large).
- *National savings* data are not available.
- *Consumer prices index* (CPI) and *whole sale prices index* (WPI) are on monthly basis.

I.2. Public Finance

- The public sector in Indonesia consists of the central government, 27 seven provincial governments, 368 municipal and local governments, and about 180 public enterprises (of which 23 are financial institutions). Comprehensive data on the *consolidated public sector* are not available.
- There is a lack of transparency in the classification of *central government expenditure* that take place through *non budgetary accounts*.
- Data on *tax revenues* are generally reliable, but data on *non-tax revenues, expenditures, and net lending related to non-budget accounts* held with the domestic banking system--primarily with Bank Indonesia are difficult to asses. The IMF staff's estimates of *net foreign financing* of the central government is derived from the *balance of payments data* provided by Bank Indonesia, which often *differs* from the *budget estimate*. The resulting *expenditure and/or repayments* are classified as *capital expenditure and net lending*. To move towards preparing consolidated data for public sector accounts, owing to differences in ***coverage***, there is not always a direct correspondence between ***bank financing of the central government in the fiscal accounts*** and ***changes in credit to the Government (net) in the monetary accounts.***

I. 3. Monetary data

The central bank balance sheet and the monetary survey are provided with a relatively short lag. These data are later published in weekly and monthly statistical bulletins. Monetary data are reported on a fairly regular basis. However, numerous data inconsistencies have prevented their publications. In resolving these inconsistencies, Bank

Indonesia is requested to submit its balance sheet as well as consolidated balance sheet for the deposit money banks (DMBs). Bank Indonesia has recently submitted its revised monetary data along with those of DMBs for 1994, which are generally consistent, although they do not resolve all of the identified data problems.

I. 4. Balance of Payments

- *Foreign trade* data are prepared by BPS on a monthly basis and by Bank Indonesia on a quarterly basis. There are some weaknesses in the estimation of *trade prices*. Although BPS prepares *export and import unit value* data, Bank Indonesia also constructs an *export price index* for internal use, based on some broad prices indices. There is a lag of more than one year in the reporting of data on total *exports, unit value of exports*, and *value, volume*, and *unit value of petroleum exports.*
- The recording of export and import transaction in Indonesia's balance of payments (prepared by Bank Indonesia) are mainly based on customs documents, namely PEB (Notification of Exports of Goods) and PPUD (Notification of Incoming Goods to be Utilized). Since April 1990, the PPUD has been changed to PIUD (Notification of Import to be Utilized). In addition to these documents, the records of Indonesia's balance of payments also incorporate data from reports prepared by certain companies/institutions. In international trade statistics (prepared by BPS), export means trade where goods are sent out of the Indonesian custom territory under legal conditions, while import is trade where foreign goods are admitted into the Indonesian custom territory under legal conditions. Unlike the recording in the balance of payments, data processing in international trade statistics are entirely based on export

and import documents (PEB and PPUD/PIUD) sent by foreign exchange banks to Bank Indonesia. Data on imports under US$5 thousand are available from customs offices; consequently, export and import data in the balance of payments are different from those in the international trade statistics (*Source* : Indonesian Financial Statistics, Bank Indonesia, Vol.XXV No.5, May, 1992, page 119-120).

- A better and reliability data of *terms of trade index* should be constructed.
- In the capital account (prepared on the basis of the fourth edition of the *Balance of Payments Manual*) there are several important gaps in data estimates. There are no data on *long*-and *short*-term investment of the banking sector and on *short-term* investment of the official sector. Also there is no data on *outward portfolio investment* and *direct investment* abroad. *Error and omissions* were relatively large and positive in 1992/1993, while they were relatively large and negative in 1993/94-1994/95.
- Detail of *capital account* of the balance of payments and of related *stocks* and *maturity* of *external private debt* need to be improved.

  There are, at present, considerable variations in *private sector debts* estimates compiled by different organizations. The World Bank staff's estimate is the *highest*, while that of the authorities is the *lowest*, and the Fund staff's estimate falling in *between*. Although the staff estimate, which is based on data provided by BIS, the World Bank, and the authorities, is considered acceptable given the circumstance and is used in staff reports double counting of some items is possible.

  It is suggested that the data on debtor based be improved by widening the coverage of the reporting. The *link* between the *external debt stock,*

*debt service*, and the *balance of payments* should also be improved. Estimates of the *maturity of private debt*, in particular of *short-term debt*, are very approximate.

- Data on the *gross* and *net official reserve position* of the central bank are regularly reported to the staff on a weekly basis with a short lag. There is a difference between the data officially reported for publication in *International Financial Statistics* and those *used by the staff.*

  *"Contingent" reserves* were assigned in the past by Bank Indonesia as an accounting counterpart to the *domestic liability* arising from the *rediscounting of export drafts.* In the staff's view, these reserves (which are gradually being reduced) should be treated as *part of international reserves* as they have the same liquidity and monetary implications as the other foreign exchange reserves.

## II. Indonesia's budget deficit concepts used in this study: primary budget deficit and net resources inflows budget deficit.

Before going further, it should be noted that in this study we denote budget surplus with positive sign and budget deficit with negative sign. In most of the studies on Indonesia, the IMF or the World Bank defines budget deficit as being the sum of Total Revenue and Grants minus Current expenditure (of which interest on external debt) which is equal to Current budget balance minus Development expenditure and Net lending. From the financing side it consists of domestic financing and net foreign financing. Domestic financing is the change in net government deposits with the domestic banking system, while net foreign borrowing is equal to Gross drawings minus Amortization. An example follows :

Table I.1
Indonesia: Summary of Central Government Operations [1]
(in billions of rupiahs)

| Description | | 1989/90 |
|---|---|---|
| Tax revenue | | 26,679 |
| Oil/gas | 11,253 | |
| Non-oil/gas | 15,426 | |
| Nontax revenue | | 2,062 |
| Grants | | 304 |
| Total revenue and grants | | 29,045 |
| Current expenditure | | 18,193 |
| Of which : | | |
| Personnel | 6,202 | |
| Subsidies | 1,290 | |
| Interest on external debt | 4,496 | |
| Current budget balance | | 10,852 |
| Development expenditure and net lending [2] | | 12,683 |
| Total expenditure and net lending | | 30,876 |
| **Overall balance** | | **-1,831** |
| **Financing, net** | | **1,831** |
| Domestic [3] | | -1,440 |
| Foreign, net [4] | | 3,271 |
| Gross drawings | 9,858 | |
| Amortization | 6,587 | |

1) The fiscal year begins on April 1
2) Derived as the sum of the current budget balance and net financing. Derived residually in this manner, these estimates of capital expenditure include off-budget spending.
3) Change in net government deposits with the domestic banking system
4) As derived from the balance of payments accounts.

*Source*: International Monetary Funds, Indonesia: Recent Economic Developments, May 21, 1993

Contrary to common practice in calculating budget deficit, in Indonesia, due to non-availability of the data (i.e., net lending and off-budget expenditure), the deficit as shown on the table above is derived from the financing side. Budget deficit concept which will be used in this study does not include interest payment and is known as *primary* budget balance.

As budget deficit being financed by domestic monetary system, or "*budget balance with respect to monetary system*", is assumed to some extent "beyond" the control of government (Monetary Authorities), but its net monetary impact is readily observable, then budget deficit concepts will consist of two kinds namely *primary budget deficit* and *net resources inflow budget deficit.*

1. "*Primary budget deficit*". This is *overall budget balance* netted out *interest payments*. Under this concept, budget deficit includes budget deficit financed by the domestic monetary system. In the estimation, this variable is denoted as PBBS (primary balance budget surplus).
2. "*Net resources inflow budget deficit*". This is derived as primary budget deficit deducted by "*budget deficit financed by domestic monetary system*". So, the difference from the first concept is simply the exclusion of budget deficit that is financed by domestic monetary/banking system. In other words, "n*et resources inflow budget deficit*" is budget deficit which is *purely* financed by net foreign borrowing net of interest payment. In the regression estimation this variable is denoted as net resource inflow budget surplus (NRIBS).

Table I.2.
Budget deficits/surplus derivation from the financing side
(in trillion rupiahs)

| Fiscal year | Overall budget balance | Overall financing | Deficit financed by domestic monetary system | Net foreign borrow-ing (Gross drawing-ammor) =3-4 | Official Interest payments | Deficit financed by net resources inflow = - (5-6) | Primary budget balance =2+6 or 7-4 |
|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 1971/72 | -0.091 | 0.091 | 0.016 | 0.075 | 0.01 | -0.065 | -0.081 |
| 1972/73 | -0.117 | 0.117 | -0.02 | 0.137 | 0.015 | -0.122 | -0.102 |
| 1973/74 | -0.163 | 0.163 | -0.024 | 0.187 | 0.02 | -0.167 | -0.143 |
| 1974/75 | -0.167 | 0.167 | 0.025 | 0.142 | 0.024 | -0.118 | -0.143 |
| 1975/76 | -0.468 | 0.468 | -0.41 | 0.878 | 0.039 | -0.839 | -0.429 |
| 1976/77 | -0.693 | 0.693 | -0.387 | 1.08 | 0.09 | -0.99 | -0.603 |
| 1977/78 | -0.393 | 0.393 | -0.293 | 0.686 | 0.123 | -0.563 | -0.27 |
| 1978/79 | -0.754 | 0.754 | -0.291 | 1.045 | 0.237 | -0.808 | -0.517 |
| 1979/80 | -0.764 | 0.764 | -1.14 | 1.904 | 0.417 | -1.487 | -0.347 |
| 1980/81 | -1.102 | 1.102 | -1.876 | 2.978 | 0.4 | -2.578 | -0.702 |
| 1981/82 | -1.172 | 1.172 | -0.131 | 1.303 | 0.464 | -0.839 | -0.708 |
| 1982/83 | -1.191 | 1.191 | 0.581 | 0.61 | 0.68 | 0.07 | -0.511 |
| 1983/84 | -1.862 | 1.862 | -2.22 | 4.082 | 1.195 | -2.887 | -0.667 |
| 1984/85 | 1.219 | -1.219 | -2.878 | 1.659 | 1.492 | -0.167 | 2.711 |
| 1985/86 | -0.948 | 0.948 | 1.199 | -0.251 | 1.619 | 1.87 | 0.671 |
| 1986/87 | -3.621 | 3.621 | -1.503 | 5.124 | 2.525 | -2.599 | -1.096 |
| 1987/88 | -1.037 | 1.037 | 1.824 | -0.787 | 3.435 | 4.222 | 2.398 |
| 1988/89 | -4.388 | 4.388 | -0.101 | 4.489 | 4.403 | -0.086 | 0.015 |
| 1989/90 | -3.362 | 3.362 | -0.06 | 3.422 | 4.819 | 1.397 | 1.457 |
| 1990/91 | 0.798 | -0.798 | -4.82 | 4.022 | 5.032 | 1.01 | 5.83 |
| 1991/92 | 0.982 | -0.982 | -2.407 | 1.425 | 4.562 | 3.137 | 5.544 |
| 1992/93 | -1.096 | 1.096 | 0 | 1.096 | 5.386 | 4.29 | 4.29 |
| 1993/94 | 2.018 | -2.018 | -1.554 | -0.464 | 6.344 | 6.808 | 8.362 |

*Notes :* Col. 1. Self explanatory
Col. 2. Minus means deficit.
Col. 3. Self explanatory
Col. 4. Plus means banks net claims on government (net government deposit) increase (decrease) represents budget deficit financed by banks.
Col. 5. Residual. Plus represents budget deficit financed by net foreign borrowing. Shown in the state budget as the development revenues minus foreign debt amortization. Minus means Government is net creditor abroad (debt repayment).
Col. 6. Self explanatory
Col. 7. Net foreign borrowing net of interest payment (net resources inflow). Minus means budget deficit purely financed by net foreign borrowing net of interest payments.
Col. 8. Minus means (over all) budget deficit netted of interest payments

*Source:* Government Finance Statistics Year Book, IMF (GFS), except Col. 4 from Bank Indonesia's *Indonesian Financial Statistics.*

The distinction is deliberately made, so that in the estimation we will see the effects of budget deficit on balance of trade, with and without budget deficit financed by domestic monetary system.

By definition net resource inflows is gross official foreign borrowing (gross drawings) minus interest payments. And net foreign borrowing is gross foreign borrowing minus debt amortization. To clarify the process of derivations, we refer to Table I.2 above.

The overall budget balance and overall financing (col. 2 and 3) in Table I.2 above, are taken from Government Finance Statistics Year Book (GFS), IMF. This two sets of data are the same, except for their signs. And these data are found to be the same as those in the International Finance Statistics (IFS), IMF. The data on official interest payment (col. 6) are also taken from the GFS.

Data on net foreign borrowing (col. 5) is a *residual of overall budget balance/financing* (col. 3) over the *change in net claims of Bank Indonesia and deposit money banks on government* (deficit which is financed by domestic monetary/ banking system) (col.4). The latter data is taken from the monetary surveys of Bank Indonesia's *Indonesian Financial Statistics*. Deriving this way the net foreign borrowing is the same as *development revenues* minus *foreign debt amortization* reported in the State Budget (as reported in Table 3.1 Government Finance Operation, in the "*Bank Indonesia, Report for The Financial Year, 1994/95*", p.37). Deficit financed by net resource inflow or net resource inflow budget deficit (col.7) is derived as net foreign borrowing (col.5) minus official interest payments (col.6). Column 8, primary budget balance, is simply overall budget balance (col.2) plus official interest

payments (col.6) or the same as deficit financed by net resource inflow (col.7) minus deficit financed by domestic monetary system (col.4).

## III. Net domestic credit of monetary authorities to domestic sector (NDCMA).

Like net domestic credit of monetary system to the government to finance the deficit (col. 4), net domestic credit of monetary authorities to domestic sector (NDCMA) used in the regression, is also taken from Bank Indonesia's *Indonesian Financial Statistics*.

## III. Trade balance concept (NX)

In order to be in line with the budget deficit concept above in which (foreign) interest rate payment is not included, the trade balance concept to be used is current account less net factor income/services or trade balance and services (out of interest payments). However, data on balance of services (out of interest payments) such as tourisms, insurance is not reliable and is calculated by estimation[1)], which is more or less 10 percent of export or import values[2)]. For this reason, in the trade balance concept we only refer to the balance of trade of goods without taking into account balance on services.

## IV. Quarterly data derivations

Realizing the complexity of statistical issues of the data and non-availability of the quarterly data, some data have to be self-derived. Data on world's growth rate index, terms of trade index (on goods), and Indonesia's gross domestic product, on quarterly basis are not available, therefore these data have to be derived by using quarterly interpolation technique proposed by Goldstein and Khan (1976) (the source is not known). It involves interpolating by fitting a quadratic curve to three successive annual observations.

If $x_{t-1}, x_t$ and $x_{t+1}$ are three successive annual observations of a flow variable $x(t)$, the quadratic function passing through the three points satisfies the following equations:

$$\int_0^1 (as^2+bs+c)\, ds = x_{t-1}$$

$$\int_1^2 (as2+bs+c)\, ds = x_t$$

$$\int_2^3 (as2+bs+c)\, ds = x_{t+1}$$

Integrating and solving for $a$, $b$ and $c$ gives:

$$a = .5x_{t-1}-x_t+.5x_{t+1}$$

$$b = -2x_{t-1}+3x_t-x_{t+1}$$

$$c = 1.8333x_{t-1}-1.1666x_t+ .333x_{t-1}$$

The quarterly data observations *Q1*, *Q2*, *Q3*, and *Q4* are interpolated as:

$$Q1 = \int_{1}^{1.25} (as^2+bs+c)\, ds = .0548x_{t-1}+.2343x_t-.0390x_{t+1}$$

$$Q2 = \int_{1.25}^{1.5} (as^2+bs+c).ds = .0079x_{t-1}+.02655x_t - .024x_{t+1}$$

$$Q3 = \int_{1.5}^{1.75} (as^2+bs+c).ds = .0233x_{t-1}+ .2652x_t+.008x_{t+1}$$

$$Q4 = \int_{1.75}^{2} (as^2+bs+c).ds = .0392x_{t-1}+ .2347x_t+ .0545x_{t+1}$$

## FOOTNOTES AND REFERENCES TO APPENDIX I

[1] Bank Indonesia, "*Financial Report, 1992/93*", p. 77.

[2] Discussion with Bank Indonesia's (Central Bank) authorities.

# APPENDIX II

## ESTIMATION PROCESS

Below are the variables and symbols used in the regression to be estimated. All variables are in real terms and deflated by Indonesia's GDP deflator (1983 constant prices) except world's income growth (GDPWI).

| | | |
|---|---|---|
| NX | = | real trade balance surplus |
| NRIBS/PBBS | = | real net resource inflow budget surplus/real primary budget balance surplus |
| TOTY | = | income terms of trade index |
| TBOILR | = | trade balance surplus on oil |
| GDPWI | = | world's real income growth index (1983=100) |
| REER | = | real effective exchange rate index |
| GDPRL | = | real gross domestic product |
| NDCMA | = | real flow of net domestic credit of monetary authorities to the domestic sector |

The general function of the regression equation would be as follows:

NX = f (NRIBS/PBBS, TOTY, TBOILR, GDPWI, REER, GDPRL, NDCMA)

The step by step estimation process of balance of trade surplus (NX) as a function of the explanatory variables above, using ordinary least square (OLS) are as follows.

II. 1. First version: Trade balance surplus (NX) as a function of net resources inflow budget surplus (NRIBS) and other variables

Table 1

| LS // Dependent Variable is NX<br>Sample: 1971 1993<br>Included observations: 23 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 12.20531 | 9.836564 | 1.240810 | 0.2337 |
| NRIBS | -0.025604 | 0.293904 | -0.087117 | 0.9317 |
| TOTY | -0.003085 | 0.026094 | -0.118242 | 0.9074 |
| TBOILR | 0.654524 | 0.248761 | 2.631138 | 0.0189 |
| GDPWI | -0.109990 | 0.146994 | -0.748264 | 0.4659 |
| REER | -0.072247 | 0.032225 | -2.241939 | 0.0405 |
| GDPRL | 0.067795 | 0.096848 | 0.700013 | 0.4946 |
| NDCMA | 0.211195 | 0.178209 | 1.185096 | 0.2544 |
| R-squared | 0.703997 | Mean dependent var | | 4.210841 |
| Adj.R-squared | 0.565862 | S.D. dependent var | | 2.413579 |
| S.E. of regression | 1.590287 | Akaike info criterion | | 1.196037 |
| Sum squared resid | 37.93518 | Schwarz criterion | | 1.590991 |
| Log likelihood | -38.39001 | F-statistic | | 5.096445 |
| Durbin-Watson stat. | 1.263561 | Prob(F-statistic) | | 0.003967 |

It is found that net resource inflow budget surplus (NRIBS) is the least significant variable. By dropping this variable gives:

Table 2

| LS // Dependent Variable is NX<br>Sample: 1971 1993<br>Included observations: 23 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 12.16523 | 9.516196 | 1.278371 | 0.2194 |
| TOTY | -0.002521 | 0.024480 | -0.102980 | 0.9193 |
| TBOILR | 0.656405 | 0.240014 | 2.734863 | 0.0147 |
| GDPWI | -0.108229 | 0.141010 | -0.767530 | 0.4539 |
| REER | -0.072027 | 0.031114 | -2.314934 | 0.0342 |
| GDPRL | 0.065222 | 0.089330 | 0.730127 | 0.4759 |
| NDCMA | 0.209808 | 0.171903 | 1.220497 | 0.2400 |
| R-squared | 0.703847 | Mean dependent var | | 4.210841 |
| Adj.R squared | 0.592790 | S.D. dependent var | | 2.413579 |

| | | | |
|---|---|---|---|
| S.E. of regression | 1.540178 | Akaike info criterion | 1.109586 |
| Sum squared resid | 37.95438 | Schwarz criterion | 1.455171 |
| Log likelihood | -38.39583 | F-statistic | 6.337686 |
| Durbin-Watson stat. | 1.238122 | Prob(F-statistic) | 0.001448 |

From the result above among the insignificant variables income terms of trade (TOTY) is the least significant one. Dropping this variable yields:

Table 3

| LS // Dependent Variable is NX<br>Sample: 1971-1993<br>Included observations: 23 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 11.83194 | 8.684636 | 1.362399 | 0.1909 |
| TBOILR | 0.641017 | 0.182280 | 3.516669 | 0.0026 |
| GDPWI | -0.101805 | 0.122724 | -0.829544 | 0.4183 |
| REER | -0.071455 | 0.029710 | -2.405079 | 0.0278 |
| GDPRL | 0.059257 | 0.065997 | 0.897874 | 0.3818 |
| NDCMA | 0.211495 | 0.166066 | 1.273561 | 0.2200 |
| R-squared | 0.703651 | Mean dependent var | | 4.210841 |
| Adj.R-squared | 0.616489 | S.D. dependent var | | 2.413579 |
| S.E. of regression | 1.494687 | Akaike info criterion | | 1.023292 |
| Sum squared resid | 37.97953 | Schwarz criterion | | 1.319508 |
| Log likelihood | -38.40345 | F-statistic | | 8.072946 |
| Durbin-Watson stat. | 1.249110 | Prob(F-statistic) | | 0.000467 |

Followed by dropping world's income growth index (GDPWI) the result follows:

Table 4

| LS // Dependent Variable is NX<br>Sample: 1971 1993<br>Included observations: 23 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 5.097822 | 3.059139 | 1.666424 | 0.1129 |
| TBOILR | 0.547784 | 0.142258 | 3.850638 | 0.0012 |
| REER | -0.057696 | 0.024435 | -2.361243 | 0.0297 |
| GDPRL | 0.006264 | 0.016431 | 0.381249 | 0.7075 |

| NDCMA | 0.141476 | 0.141771 | 0.997917 | 0.3315 |
|---|---|---|---|---|
| R-squared | 0.691655 | Mean dependent var | | 4.210841 |
| Adj.R-squared | 0.623134 | S.D. dependent var | | 2.413579 |
| S.E. of regression | 1.481683 | Akaike info criterion | | 0.976017 |
| Sum squared resid | 39.51691 | Schwarz criterion | | 1.222864 |
| Log likelihood | -38.85978 | F-statistic | | 10.09403 |
| Durbin-Watson stat. | 1.217524 | Prob(F-statistic) | | 0.000182 |

The next variable to be dropped is real gross domestic product (GDPRL) which then give:

Table 5

| LS // Dependent Variable is NX<br>Sample: 1971-1993<br>Included observations: 23 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 6.114215 | 1.466204 | 4.170098 | 0.0005 |
| TBOILR | 0.575423 | 0.119615 | 4.810621 | 0.0001 |
| REER | -0.065318 | 0.013729 | -4.757677 | 0.0001 |
| NDCMA | 0.141115 | 0.138543 | 1.018567 | 0.3212 |
| R-squared | 0.689165 | Mean dependent var | | 4.210841 |
| Adj.R-squared | 0.640086 | S.D. dependent var | | 2.413579 |
| S.E. of regression | 1.447975 | Akaike info criterion | | 0.897103 |
| Sum squared resid | 39.83601 | Schwarz criterion | | 1.094580 |
| Log likelihood | -38.95227 | F-statistic | | 14.04188 |
| Durbin-Watson stat. | 1.187945 | Prob(F-statistic) | | 0.000046 |

Finally variable net domestic credit of monetary authorities (NDCMA) has to be dropped and yields:

Table 6

| LS // Dependent Variable is NX<br>Sample: 1971 1993<br>Included observations: 23 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 6.170909 | 1.466519 | 4.207860 | 0.0004 |
| TBOILR | 0.540815 | 0.114795 | 4.711122 | 0.0001 |

| REER | -0.062500 | 0.013460 | -4.643419 | 0.0002 |
|---|---|---|---|---|
| R-squared | 0.672192 | Mean dependent var | | 4.210841 |
| Adj.R-squared | 0.639411 | S.D. dependent var | | 2.413579 |
| S.E. of regression | 1.449331 | Akaike info criterion | | 0.863312 |
| Sum squared resid | 42.01122 | Schwarz criterion | | 1.011420 |
| Log likelihood | -39.56367 | F-statistic | | 20.50565 |
| Durbin-Watson stat. | 1.273018 | Prob(F-statistic) | | 0.000014 |

The end result shows that the remaining variables are significant and give expected signs, but they suffer from serial correlation shown by low value of D.W. Testing for cointegration, they are not cointegrated, as shown below:

Table 7

| Engle-Granger Cointegration Test : UROOT(C,1) | | |
|---|---|---|
| -Cointegrating Vector- | | |
| **NX** | | 1.000000 |
| **TBOILR** | | -0.540815 |
| **REER** | | 0.062500 |
| Dickey-Fuller t-statistic-3.6980 | | |
| MacKinnon critical values: | 1% | -5.0599 |
| | 5% | -4.1710 |
| | 10% | -3.7553 |

It is quite unreasonable to expect that there had been no structural change in the Indonesia's economy during such a long period, in which there were ups and downs in the export and import prices, mainly oil, and changes in the economic policy. There could possibly be three ways to detect structural change. First, by using dummy variables from which we will be able to see whether the change happens in the intercept and/or the slope. Unfortunately we can not apply this option as we will lose many degrees of freedom. So, we leave out this choice. Second, by using

recursive methods and third by applying Chow's test. As regard recursive method they may comprise[1) ] :

a. *recursive residuals* test,

b. *one-step forecast* test,

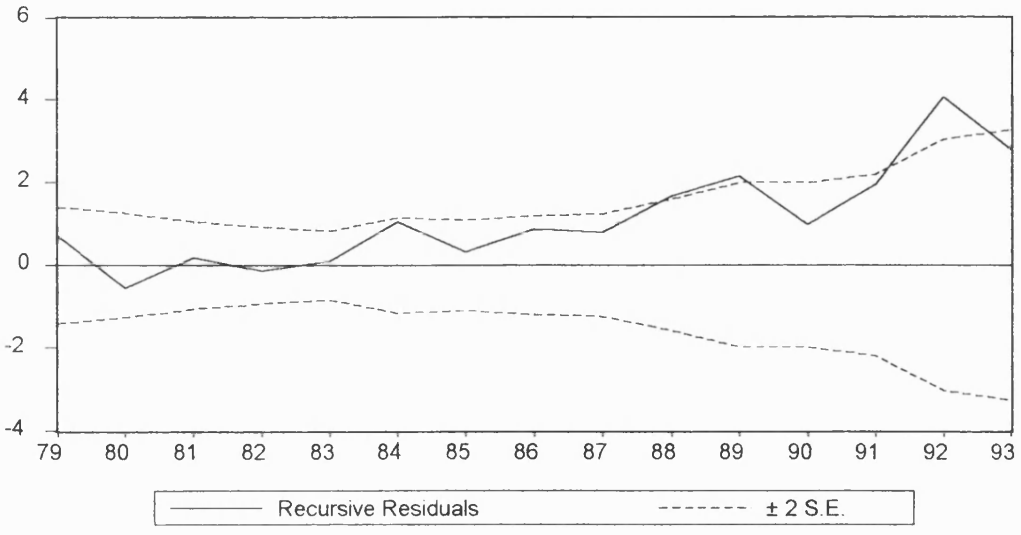
c. *cusum test*,

d. *recursive coefficient* estimates.

From the plots, all these approaches (selections) can detect the stability of the parameters, assuming that break point is not known '*a priori*'. The plots of these approaches are only valid for equation estimated by ordinary least square (OLS). The nature of the tests and their corresponding results are discussed sequentially.

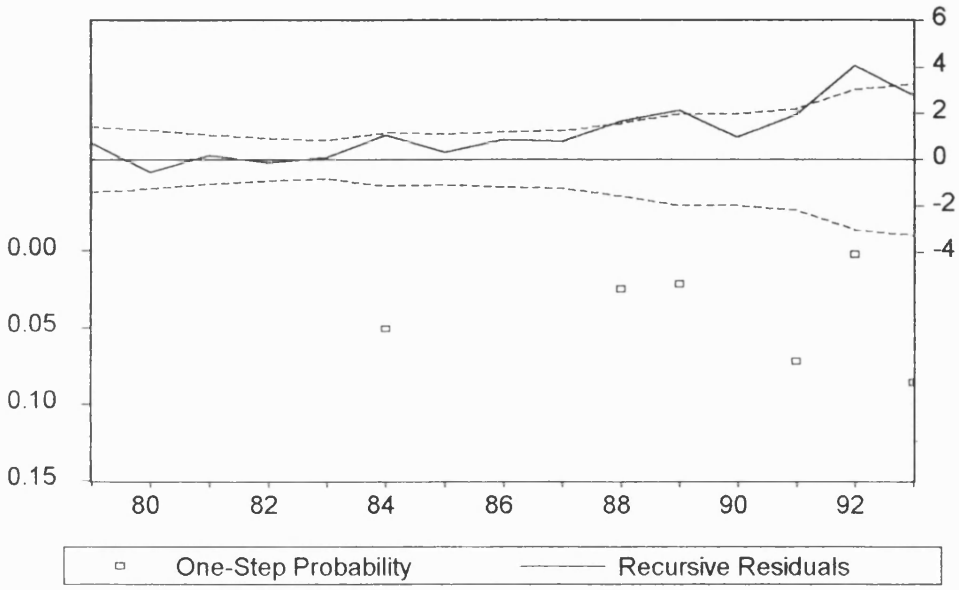
a. *Recursive residuals*, in which the data period is increased successively, the test shows a plot of the recursive residuals about the zero line. Each recursive residual is the error in a one-step ahead forecast. Residuals that move out from the standard error bands suggest instability in the parameter of the equation. The result of the test is as follows:

Figure 1.
(*Recursive residuals*)



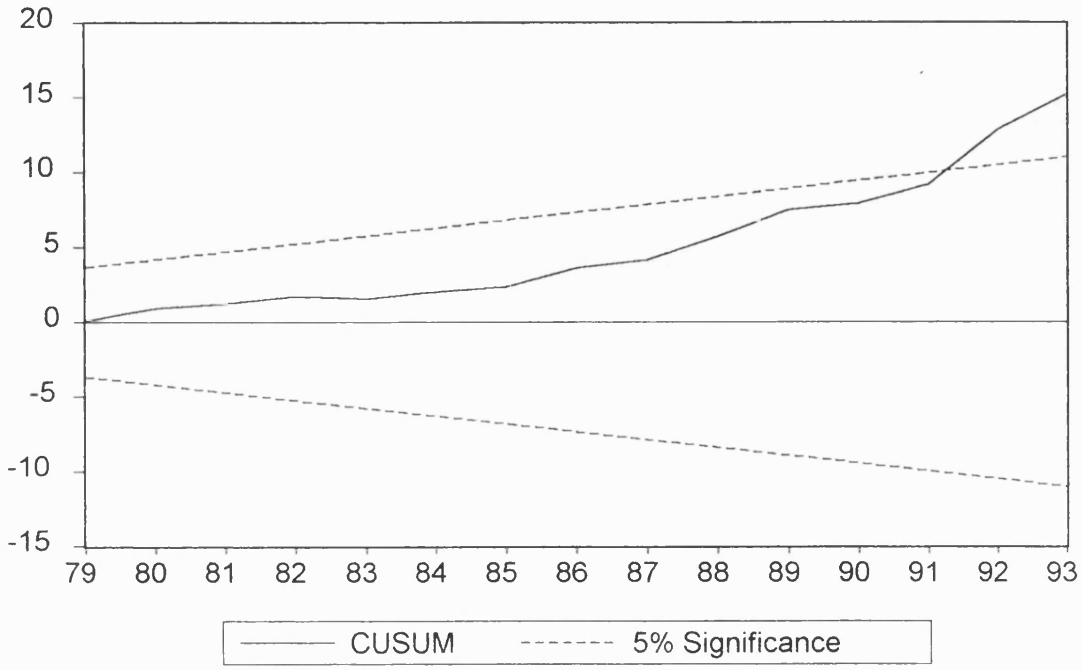
b. The *one -step* forecast test is recursive residuals, where the error is compared with its standard deviation under the null hypothesis to test whether the value of the dependent variable at time *t* might have come from the model fitted to all the data, up to that point. While the upper portion of the plot show the recursive residuals and its standard errors, the lower portion shows the probability values for those sample points where the hypotheses of parameter constancy would be rejected at less than 15 percent level. The result of the test is shown below :

Figure 2
(*One-step* forecast test)




c. *Cusum* test looks at the cumulative sum of the residuals plotted against the time. This test simply the sum of the recursive residuals normalised by the standard error of the residuals. Parameter instability is shown when the cumulative sum goes outside the area between the two critical lines. The result of the test is shown on Figure 3 below:

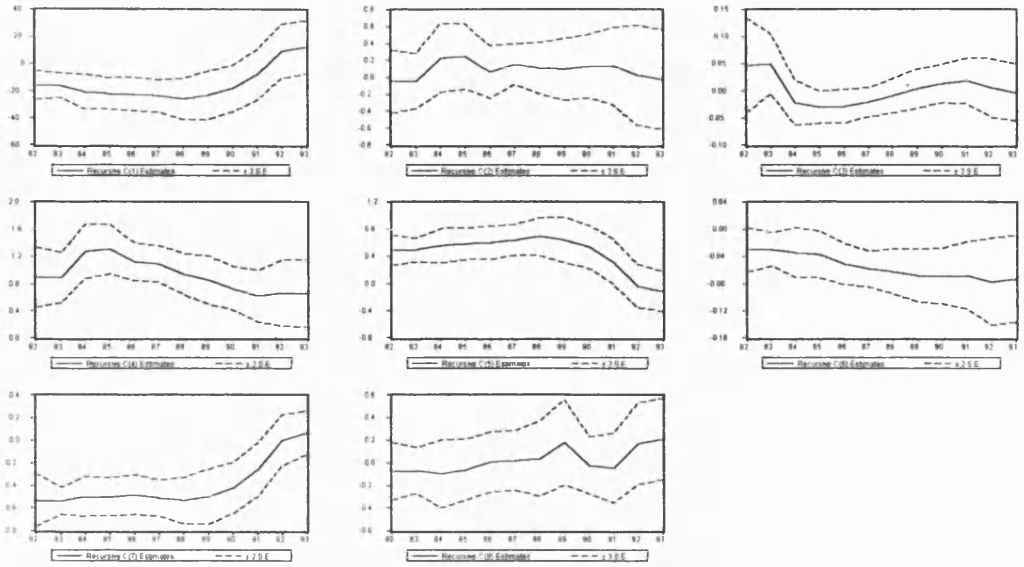
Figure 3
(*Cusum* test)




All the tests above give indications that there might have been structural break in 1992. However, there seem to be similar parameter shifts as well in 1984, 1988 and 1989 as shown by Figure 1 and Figure 2.

d. *Recursive coefficient estimates* enable us to trace the evolution of each coefficient as more and more of the data are used in the estimation for all feasible recursive estimation. If the coefficient displays significant variation as more data is added to the estimating equation it is a strong indication of instability. The dramatic jumps of the coefficient plots will some times show the postulated equation tries to digest a structural break. The plots of the test shown on Figure 4 below :

Figure 4
(*Recursive coefficient* estimates)



The numbering of the coefficients follows the sequence of the variables to be estimated in the equation where :

c(1): constant

c(2): nribs (net resources inflow budget surplus)

c(3): toty (income terms of trade effect)

c(4): tboilr (real trade balance surplus on oil)

c(5): gdpwi (world's real income growth index)

c(6): reer (real effective exchange rate index)

c(7): gdprl (real gross domestic product)

c(8): ndcma (real flow in net domestic credit of monetary authorities to the domestic private sector

The plots of the *recursive coefficient* estimates in general, show that structural changes happened along 1984-1987 and 1992, as also indicated by the three previous figures.

Following the indications revealed by *recursive residuals*, *one-step* forecast test and *cusum* test the estimation of the regression will be run for

the period 1971 until 1991, and in case if it does not give good results, it will be followed by applying Chow's test.

Table 8

| LS // Dependent Variable is NX<br>Sample: 1971 1991<br>Included observations: 21 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -7.942723 | 9.418944 | -0.843271 | 0.4143 |
| NRIBS | 0.134272 | 0.229685 | 0.584591 | 0.5688 |
| TOTY | 0.018576 | 0.021193 | 0.876527 | 0.3967 |
| TBOILR | 0.616570 | 0.190748 | 3.232373 | 0.0065 |
| GDPWI | 0.320176 | 0.165023 | 1.940186 | 0.0744 |
| REER | -0.067433 | 0.024983 | -2.699162 | 0.0182 |
| GDPRL | -0.258626 | 0.118258 | -2.186960 | 0.0476 |
| NDCMA | -0.043321 | 0.153837 | -0.281603 | 0.7827 |
| R-squared | 0.816010 | Mean dependent var | | 3.900699 |
| Adj.R-squared | 0.716939 | S.D. dependent var | | 2.284602 |
| S.E. of regression | 1.215487 | Akaike info criterion | | 0.672622 |
| Sum squared resid | 19.20632 | Schwarz criterion | | 1.070535 |
| Log likelihood | -28.86024 | F-statistic | | 8.236601 |
| Durbin-Watson stat. | 1.646223 | Prob(F-statistic) | | 0.000630 |

By dropping net domestic credit of monetary authorities (NDCMA), being the least significant variable gives:

Table 9

| LS // Dependent Variable is NX<br>Sample: 1971 1991<br>Included observations: 21 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -6.437167 | 7.495208 | -0.858838 | 0.4049 |
| NRIBS | 0.123443 | 0.218870 | 0.564001 | 0.5817 |
| TOTY | 0.018139 | 0.020429 | 0.887901 | 0.3896 |
| TBOILR | 0.632311 | 0.176275 | 3.587068 | 0.0030 |
| GDPWI | 0.292660 | 0.128537 | 2.276850 | 0.0390 |
| REER | -0.069727 | 0.022827 | -3.054585 | 0.0086 |
| GDPRL | -0.240694 | 0.096317 | -2.498973 | 0.0255 |

| | | | |
|---|---|---|---|
| R-squared | 0.814888 | Mean dependent var | 3.900699 |
| Adj. R-squared | 0.735555 | S.D. dependent var | 2.284602 |
| S.E. of regression | 1.174840 | Akaike info criterion | 0.583465 |
| Sum squared resid | 19.32348 | Schwarz criterion | 0.931639 |
| Log likelihood | -28.92409 | F-statistic | 10.27166 |
| Durbin-Watson stat. | 1.583141 | Prob(F-statistic) | 0.000188 |

The next variable to be dropped is net resource inflow budget deficit (NRIBS) and gives:

Table 10

| LS // Dependent Variable is NX<br>Sample: 1971 1991<br>Included observations: 21 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -6.146724 | 7.305555 | -0.841377 | 0.4133 |
| TOTY | 0.014795 | 0.019101 | 0.774603 | 0.4506 |
| TBOILR | 0.618926 | 0.170654 | 3.626791 | 0.0025 |
| GDPWI | 0.280144 | 0.123696 | 2.264783 | 0.0388 |
| REER | -0.070002 | 0.022297 | -3.139516 | 0.0067 |
| GDPRL | -0.224071 | 0.089588 | -2.501118 | 0.0245 |
| R-squared | 0.810682 | Mean dependent var | | 3.900699 |
| Adj.R-squared | 0.747576 | S.D. dependent var | | 2.284602 |
| S.E. of regression | 1.147825 | Akaike info criterion | | 0.510694 |
| Sum squared resid | 19.76253 | Schwarz criterion | | 0.809129 |
| Log likelihood | -29.15999 | F-statistic | | 12.84637 |
| Durbin-Watson stat. | 1.749200 | Prob(F-statistic) | | 0.000056 |

Finally variable income terms of trade (TOTY) has to be dropped and gives results as follows:

Table 11

| LS // Dependent Variable is NX<br>Sample: 1971 1991<br>Included observations: 21 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -3.528903 | 6.395386 | -0.551789 | 0.5887 |

| | | | | |
|---|---|---|---|---|
| TBOILR | 0.701509 | 0.131576 | 5.331594 | 0.0001 |
| GDPWI | 0.226477 | 0.101183 | 2.238296 | 0.0398 |
| REER | -0.072595 | 0.021767 | -3.335111 | 0.0042 |
| GDPRL | -0.176884 | 0.064863 | -2.727035 | 0.0149 |
| R-squared | 0.803109 | Mean dependent var | | 3.900699 |
| Adj.R-squared | 0.753887 | S.D. dependent var | | 2.284602 |
| S.E. of regression | 1.133387 | Akaike info criterion | | 0.454677 |
| Sum squared resid | 20.55304 | Schwarz criterion | | 0.703373 |
| Log likelihood | -29.57182 | F-statistic | | 16.31585 |
| Durbin-Watson stat. | 1.633615 | Prob(F-statistic) | | 0.000017 |

All variables are significant and give expected signs. Testing for cointegration test yields:

Table 12

| Engle-Granger Cointegration Test : UROOT(C,1) | | |
|---|---|---|
| -Cointegrating Vector- | | |
| NX | | 1.000000 |
| TBOILR | | -0.701502 |
| GDPWI | | -0.226475 |
| REER | | 0.072595 |
| GDPRL | | 0.176882 |
| Dickey-Fuller t-statistic | -2.7921 | |
| MacKinnon critical values: | 1% | -6.2273 |
| | 5% | -5.1951 |
| | 10% | -4.7078 |

The result shows that the regression is not cointegrated. All the plot tests above, however, may offer only informal evidence of parameter instability. The last option to detect structural break is using Chow's test. Based on *a-priori* judgment, it is quite possible that the structural break may happen in 1986 marking the big fall in world oil prices, and its possible decelerated effect in 1987 and 1988 and of the development in world's income growth around that year. The fall in oil price affects terms

of trade ($TOT_y$), budget surplus (NRIBS), and government responses through devaluation in 1986, monetary policy and other trade reforms. We, therefore, apply Chow's forecast test instead of break point test as it would not possible to implement the later due to insufficient number of observations compared with the number of the explanatory variables. The results follow:

Table 13

Chow Forecast Test: Forecast from 1985 to 1993

| | | | |
|---|---|---|---|
| F-statistic | 10.48504 | Probability | 0.004882 |
| Log likelihood ratio | 64.79233 | Probability | 0.000000 |

Chow Forecast Test: Forecast from 1986 to 1993

| | | | |
|---|---|---|---|
| F-statistic | 15.90101 | Probability | 0.000768 |
| Log likelihood ratio | 67.93007 | Probability | 0.000000 |

Chow Forecast Test: Forecast from 1987 to 1993

| | | | |
|---|---|---|---|
| F-statistic | 14.97343 | Probability | 0.000513 |
| Log likelihood ratio | 60.86488 | Probability | 0.000000 |

Chow Forecast Test: Forecast from 1988 to 1993

| | | | |
|---|---|---|---|
| F-statistic | 15.78869 | Probability | 0.000258 |
| Log likelihood ratio | 56.22551 | Probability | 0.000000 |

Chow Forecast Test: Forecast from 1989 to 1993

| | | | |
|---|---|---|---|
| F-statistic | 10.80417 | Probability | 0.000885 |
| Log likelihood ratio | 42.70235 | Probability | 0.000000 |

The range of critical value of the F distribution for $v_1=n_2=9$ ; $v_2=n_1-k(=8)=6$ and for $v_1=n_2=5$ ; $v_2=n_1-k(=8)=10$ degree of freedom with 5% significant level are ; $F_{0.5}(9,6) = 4.10$ and $F_{0.5}(5,10) = 3.33$. All the F values above show that they are all greater than critical value, indicating that there were five possible break points (years). The problem here is to choose the appropriate or relevant break point among the four. To overcome this, the regression results of those five periods are examined one by one. In other words we compare directly the result of the regression

covering the period, 1971-1984 with that of 1971-1985, 1971-1986, 1971-1987, and 1971-1988, and choose the best result based on diagnostic tests.

Running the regression from 1971-1984 gives :

Table 14

| LS // Dependent Variable is NX<br>Sample: 1971 1984<br>Included observations: 14 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -20.79421 | 6.401722 | -3.248222 | 0.0175 |
| NRIBS | 0.229519 | 0.203467 | 1.128037 | 0.3024 |
| TOTY | -0.021651 | 0.020548 | -1.053685 | 0.3326 |
| TBOILR | 1.277451 | 0.198310 | 6.441703 | 0.0007 |
| GDPWI | 0.559628 | 0.126650 | 4.418678 | 0.0045 |
| REER | -0.034181 | 0.018458 | -1.851803 | 0.1135 |
| GDPRL | -0.495448 | 0.088908 | -5.572578 | 0.0014 |
| NDCMA | -0.098118 | 0.150799 | -0.650653 | 0.5394 |
| R-squared | 0.969403 | Mean dependent var | | 3.217514 |
| Adj.R-squared | .0.933707 | S.D. dependent var | | 2.387786 |
| S.E. of regression | 0.614793 | Akaike info criterion | | -0.677379 |
| Sum squared resid | 2.267825 | Schwarz criterion | | -0.312203 |
| Log likelihood | -7.123485 | F-statistic | | 27.15705 |
| Durbin-Watson stat. | 2.643920 | Prob(F-statistic) | | 0.000390 |

Following the whittling down process of the insignificant variables one by one finally give us:

Table 15

| LS // Dependent Variable is NX<br>Sample: 1971 1984<br>Included observations: 14 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -19.98176 | 6.340587 | -3.151406 | 0.0117 |
| TBOILR | 1.026802 | 0.127353 | 8.062620 | 0.0000 |
| GDPWI | 0.552143 | 0.121983 | 4.526374 | 0.0014 |
| REER | -0.044120 | 0.016482 | -2.676827 | 0.0253 |
| GDPRL | -0.480600 | 0.080020 | -6.005958 | 0.0002 |
| R-squared | 0.952707 | Mean dependent var | | 3.217514 |

| | | | |
|---|---|---|---|
| Adj.R-squared | 0.931688 | S.D. dependent var | 2.387786 |
| S.E. of regression | 0.624085 | Akaike info criterion | -0.670484 |
| Sum squared resid | 3.505341 | Schwarz criterion | -0.442249 |
| Log likelihood | -10.17175 | F-statistic | 45.32585 |
| Durbin-Watson stat. | 2.314347 | Prob(F-statistic) | 0.000006 |

As the regression result above give good result in term of significances and expected signs of the variables, we now test their cointegration. The result show that they are not cointegrated as shown below:

Table 16

| Engle-Granger Cointegration Test : UROOT(C,1) | | |
|---|---|---|
| -Cointegrating Vector- | NX | 1.000000 |
| | TBOILR | -1.026760 |
| | GDPWI | -0.552157 |
| | REER | 0.044120 |
| | GDPRL | 0.480604 |
| Dickey-Fuller t-statistic-3.6994 | | |
| MacKinnon critical values: | 1% | -7.0627 |
| | 5% | -5.7022 |
| | 10% | -5.0573 |

Running the regression from 1971-1985 gives :

Table 17

| LS // Dependent Variable is NX<br>Sample: 1971 1985<br>Included observations: 15 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -21.91538 | 5.384628 | -4.069989 | 0.0047 |
| NRIBS | 0.124004 | 0.188806 | 0.656781 | 0.5323 |
| TOTY | -0.033140 | 0.013805 | -2.400497 | 0.0474 |
| TBOILR | 1.312419 | 0.169275 | 7.753179 | 0.0001 |
| GDPWI | 0.574245 | 0.106797 | 5.376983 | 0.0010 |
| REER | -0.036105 | 0.015000 | -2.406988 | 0.0470 |
| GDPRL | -0.488307 | 0.079495 | -6.142643 | 0.0005 |

| | | | | |
|---|---|---|---|---|
| NDCMA | -0.145004 | 0.124469 | -1.164980 | 0.2822 |
| R-squared | 0.973605 | Mean dependent var | | 3.373664 |
| Adj.R-squared | 0.947209 | S.D. dependent var | | 2.379079 |
| S.E. of regression | 0.546624 | Akaike info criterion | | -0.903463 |
| Sum squared resid | 2.091582 | Schwarz criterion | | -0.525836 |
| Log likelihood | -6.508105 | F-statistic | | 36.83532 |
| Durbin-Watson stat. | 2.556490 | Prob(F-statistic) | | 0.000053 |

Following the same process by dropping one by one the insignificant variables give us:

Table 18

| LS // Dependent Variable is NX<br>Sample: 1971 1985<br>Included observations: 15 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -24.35005 | 6.989612 | -3.483749 | 0.0059 |
| TBOILR | 0.878908 | 0.124482 | 7.060505 | 0.0000 |
| GDPWI | 0.644639 | 0.132810 | 4.853855 | 0.0007 |
| REER | -0.055338 | 0.018195 | -3.041447 | 0.0124 |
| GDPRL | -0.505973 | 0.092159 | -5.490218 | 0.0003 |
| R-squared | 0.933336 | Mean dependent var | | 3.373664 |
| Adj.R-squared | 0.906670 | S.D. dependent var | | 2.379079 |
| S.E. of regression | 0.726807 | Akaike info criterion | | -0.376987 |
| Sum squared resid | 5.282483 | Schwarz criterion | | -0.140971 |
| Log likelihood | -13.45667 | F-statistic | | 35.00142 |
| Durbin-Watson stat. | 1.822856 | Prob(F-statistic) | | 0.000007 |

All the variables have the expected signs and are significant. Test for cointegration test, they are not cointegrated as shown below:

Table 19

| Engle-Granger Cointegration Test : UROOT(C,1) | | |
|---|---|---|
| -Cointegrating Vector- | NX | 1.000000 |
| | TBOILR | -0.878871 |

| | | |
|---|---|---|
| | GDPWI | -0.644654 |
| | REER | 0.055338 |
| | GDPRL | 0.505981 |
| Dickey-Fuller t-statistic-3.3629 | | |
| MacKinnon critical values: | 1% | -6.8824 |
| | 5% | -5.5930 |
| | 10% | -4.9834 |

As we expand the time period to 1971-1986, and dropping one by one the insignificant variables gives us :

Table 20

| LS // Dependent Variable is NX<br>Sample: 1971 1986<br>Included observations: 16 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -24.25509 | 6.652142 | -3.646208 | 0.0038 |
| TBOILR | 0.892754 | 0.089372 | 9.989176 | 0.0000 |
| GDPWI | 0.640866 | 0.124999 | 5.126967 | 0.0003 |
| REER | -0.053862 | 0.015234 | -3.535556 | 0.0047 |
| GDPRL | -0.506285 | 0.087977 | -5.754721 | 0.0001 |
| R-squared | 0.933823 | Mean dependent var | | 3.315542 |
| Adj.R-squared | 0.909759 | S.D. dependent var | | 2.310137 |
| S.E. of regression | 0.693969 | Akaike info criterion | | -0.480350 |
| Sum squared resid | 5.297521 | Schwarz criterion | | -0.238916 |
| Log likelihood | -13.86022 | F-statistic | | 38.80533 |
| Durbin-Watson stat. | 1.979159 | Prob(F-statistic) | | 0.000002 |

Testing for cointegration test they are not cointegrated (shown below), although it has got better diagnostic tests result than that of the period 1971-1985.

Table 21

| Engle-Granger Cointegration Test : UROOT(C,1) | | |
|---|---|---|
| -Cointegrating Vector- | NX | 1.000000 |
| | TBOILR | -0.892731 |
| | GDPWI | -0.640878 |

| | | |
|---|---|---|
| | REER | 0.053861 |
| | GDPRL | 0.506293 |
| Dickey-Fuller t-statistic | | -3.7692 |
| MacKinnon critical values: | 1% | -6.7304 |
| | 5% | -5.5008 |
| | 10% | -4.9205 |

The following tables those are from Table 22 until Table 25 give the regression results running from period 1971-1987 and 1971-1988, and their cointegration tests. Dropping one by one the insignificant variables, the results always end up that only those four variables (TBOILR, GDPWI, REER, GDPRL) dominating the equation, so that we just show the end results.

Table 22

| LS // Dependent Variable is NX<br>Sample: 1971 1987<br>Included observations: 17 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -24.75695 | 6.516382 | -3.799186 | 0.0025 |
| TBOILR | 0.883363 | 0.087167 | 10.13413 | 0.0000 |
| GDPWI | 0.658646 | 0.120994 | 5.443630 | 0.0001 |
| REER | -0.058313 | 0.013925 | -4.187538 | 0.0013 |
| GDPRL | -0.515282 | 0.085848 | -6.002270 | 0.0001 |
| R-squared | 0.935668 | Mean dependent var | | 3.475377 |
| Adj.R-squared | 0.914224 | S.D. dependent var | | 2.331843 |
| S.E. of regression | 0.682940 | Akaike info criterion | | -0.522768 |
| Sum squared resid | 5.596882 | Schwarz criterion | | -0.277706 |
| Log likelihood | -14.67842 | F-statistic | | 43.63303 |
| Durbin-Watson stat. | 2.133741 | Prob(F-statistic) | | 0.000000 |

Test for cointegration test give the following result:

Table 23

| Engle-Granger Cointegration Test : UROOT(C,1) | | |
|---|---|---|
| -Cointegrating Vector- | NX | 1.000000 |

| | | |
|---|---|---|
| | TBOILR | -0.883339 |
| | GDPWI | -0.658658 |
| | REER | 0.058311 |
| | GDPRL | 0.515290 |
| Dickey-Fuller t-statistic-3.7526 | | |
| MacKinnon critical values : | 1% | -6.6004 |
| | 5% | -5.4219 |
| | 10% | -4.8663 |

Meanwhile the regression results for the period 1971-1988 and its cointegrating tests are shown below:

Table 24

| LS // Dependent Variable is NX<br>Sample: 1971 1988<br>Included observations: 18 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -26.02201 | 6.976967 | -3.729703 | 0.0025 |
| TBOILR | 0.841626 | 0.090349 | 9.315303 | 0.0000 |
| GDPWI | 0.685576 | 0.129294 | 5.302462 | 0.0001 |
| REER | -0.060823 | 0.014922 | -4.075994 | 0.0013 |
| GDPRL | -0.525000 | 0.092290 | -5.688604 | 0.0001 |
| R-squared | 0.924230 | Mean dependent var | | 3.613854 |
| Adj.R-squared | 0.900916 | S.D. dependent var | | 2.337264 |
| S.E. of regression | 0.735716 | Akaike info criterion | | -0.383689 |
| Sum squared resid | 7.036612 | Schwarz criterion | | -0.136364 |
| Log likelihood | -17.08769 | F-statistic | | 39.64278 |
| Durbin-Watson stat. | 2.048027 | Prob (F-statistic) | | 0.000000 |

Table 25

| Engle-Granger Cointegration Test : UROOT(C,1) | | |
|---|---|---|
| -Cointegrating Vector- | NX | 1.000000 |
| | TBOILR | -0.841603 |
| | GDPWI | -0.685590 |
| | REER | 0.060821 |
| | GDPRL | 0.525010 |
| Dickey-Fuller t-statistic-4.8405 | | |

| | | |
|---|---|---|
| MacKinnon critical values : | 1% | -6.4881 |
| | 5% | -5.3537 |
| | 10% | -4.8190 |

All the above results show that only regression for the period 1971-1988 is cointegrated, though only at 10% level of significance. The regression result is only slightly worse than that of period 1971-1987 (Table 22), (e.g., in terms of *t* statistics, standard error, Adjusted R-squared, Akaike and Schwarz criterion but Durbin-Watson value).

To make sure that the estimation resulting from regression for the period 1971-1988 is the optimal one, if not the "best" one, we then compare it with that of the following period, 1971-1989. The regression result of period 1971-1989 is as follows:

Table 26

| LS // Dependent Variable is NX<br>Sample: 1971 1989<br>Included observations: 19 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -22.23055 | 8.442756 | -2.633091 | 0.0197 |
| TBOILR | 0.782589 | 0.108423 | 7.217942 | 0.0000 |
| GDPWI | 0.607562 | 0.155780 | 3.900116 | 0.0016 |
| REER | -0.065510 | 0.018279 | -3.583954 | 0.0030 |
| GDPRL | -0.456376 | 0.109858 | -4.154222 | 0.0010 |
| R-squared | 0.885652 | Mean dependent var | | 3.764596 |
| Adj.R-squared | 0.852981 | S.D. dependent var | | 2.364541 |
| S.E. of regression | 0.906636 | Akaike info criterion | | 0.024905 |
| Sum squared resid | 11.50784 | Schwarz criterion | | 0.273442 |
| Log likelihood | -22.19643 | F-statistic | | 27.10838 |
| Durbin-Watson stat. | 1.617876 | Prob(F-statistic) | | 0.000002 |

Table 27

| Engle-Granger Cointegration Test : UROOT(C,1) | | |
|---|---|---|
| -Cointegrating Vector- | NX | 1.000000 |
| | TBOILR | -0.782568 |
| | GDPWI | -0.607571 |
| | REER | 0.065509 |
| | GDPRL | 0.456382 |
| Dickey-Fuller t-statistic-3.6623 | | |
| MacKinnon critical values : | 1% | -6.3901 |
| | 5% | -5.2941 |
| | 10% | -4.7774 |

The results are all worse than those of period 1971-1988, in terms of diagnostic tests and cointegration test. It raises question now as in which year the structural break takes place. For this we can only be sure that the structural break may happen either in 1987 or 1988, but we choose period 1971-1988 as the representing cointegrating regression for further analysis. As the degree of freedom dwindles (less than 20 observation) we also have to treat the result cautiously.

The reason underlying this structural break which happened either in 1987 or 1988, is very much likely to have been related with the oil price fall and the development in the Indonesian major trade liberalization measures took place around that year, reducing both quantitative restrictions and tariff rates, discussed in Chapter III. The overall effect of these policies has been :

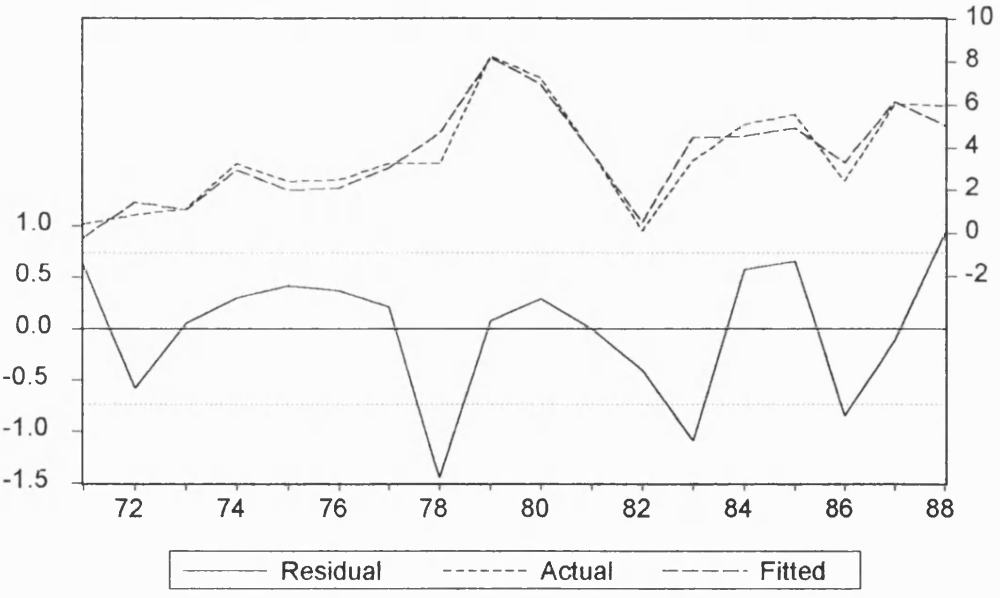
- the share of total production subject to non-tariff barriers (NTBs) fell from 38 percent in end of 1987 to 22 percent in June 1991;
- the production-weighted tariff fell from 19 percent in 1989 to 15 percent in June 1991;

- the effective tariff ceiling was lowered progressively from about 60 percent in 1985 to 30 percent in June 1991.

One important implication of these liberalization measures, in addition to improving the competitiveness of the economy, is that import has increased significantly from the reduction in the landed cost of imports. So that apart from the expansion of aggregate demand, imports would therefore be expected to respond positively to the reduction in the relative price.

The fitted, actual and the residual of the estimation of the regression of the period 1971-1988 follows:

Figure 5



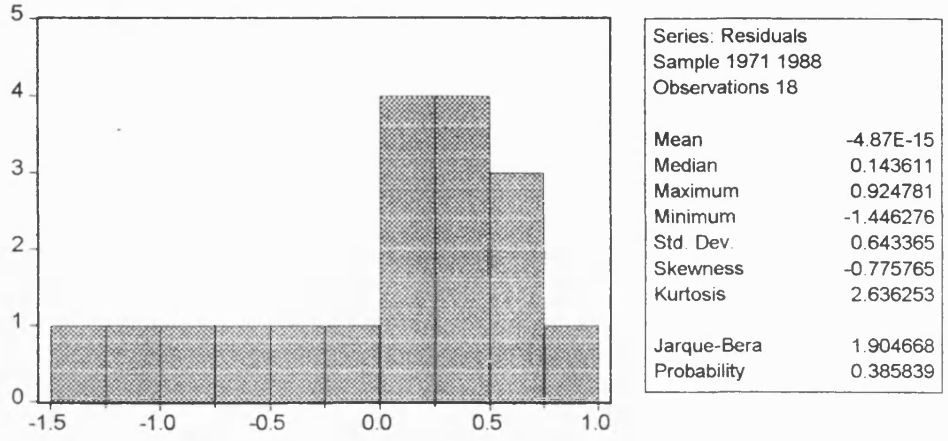

The next tests to follow are :

1. Normality test of the residual
2. RAMSEY Reset specification/functional form test
3. Heteroscedasticity test

We do not apply higher order serial correlation test considering we are dealing with annual data analysis, which is sufficiently assessed by obtaining a good result of first order serial correlation.

To test the normality of the residuals of the regression we use Jarque-Bera test and gives:

Figure 6




The figure of the residual shown above, although somewhat skewed is judged to be normal from the Jarque-Bera statistic. Furthermore, estimating regression with single equation approach on level with the variables on the right hand side of the equation which are not stationary, although they are cointegrated, produces underestimates of the standard errors. This means that the *t*-tests are not reliable, had the errors been normal[2]. The importance of normality is greater in the dynamic model, when there is no problem of non-stationarity, and the *t*-tests are therefore more reliable.

Ramsey RESET test to detect mispecification error or functional form, indicates no functional form problem exist, as shown by the value of

F= 0.14, which is less than its critical value: F $(_{3,\ 10})$= with 5% and 1% level of confidence being 3.71 and 6.55 as shown on Table 28 below.

Table 28

| Ramsey RESET Test: | | | | |
|---|---|---|---|---|
| F-statistic | 0.142644 | Probability | | 0.932057 |
| Log likelihood ratio | 0.754252 | Probability | | 0.860375 |
| LS // Dependent Variable is NX<br>Sample: 1971 1988<br>Included observations: 18 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -17.43149 | 27.36056 | -0.637103 | 0.5384 |
| TBOILR | 0.510269 | 0.919952 | 0.554669 | 0.5913 |
| GDPWI | 0.446103 | 0.716209 | 0.622867 | 0.5473 |
| REER | -0.032932 | 0.072416 | -0.454759 | 0.6590 |
| GDPRL | -0.337108 | 0.549723 | -0.613232 | 0.5534 |
| Fitted^2 | 0.095297 | 0.580922 | 0.164043 | 0.8730 |
| Fitted^3 | -0.006785 | 0.112763 | -0.060172 | 0.9532 |
| Fitted^4 | 6.70E-05 | 0.007089 | 0.009457 | 0.9926 |
| R-squared | 0.927339 | Mean dependent var | | 3.613854 |
| Adj.R-squared | 0.876476 | S.D. dependent var | | 2.337264 |
| S.E. of regression | 0.821453 | Akaike info criterion | | -0.092259 |
| Sum squared resid | 6.747850 | Schwarz criterion | | 0.303462 |
| Log likelihood | -16.71056 | F-statistic | | 18.23222 |
| Durbin-Watson stat. | 1.842509 | Prob(F-statistic) | | 0.000061 |

The result of the test on heteroscedasticity of first order[3)] and fifth order are shown below:

Table 29

| ARCH Test: | | | | |
|---|---|---|---|---|
| F-statistic | 0.803890 | Probability | | 0.384097 |
| Obs*R-squared | 0.864732 | Probability | | 0.352418 |
| LS // Dependent Variable is RESID^2 | | | | |
| Sample(adjusted): 1972 1988 | | | | |
| Included observations: 17 after adjusting endpoints | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 0.475159 | 0.164660 | 2.885704 | 0.0113 |
| RESID^2(-1) | -0.230948 | 0.257582 | -0.896599 | 0.3841 |
| R-squared | 0.050867 | Mean dependent var | | 0.391184 |
| Adj.R-squared | -0.012409 | S.D. dependent var | | 0.554950 |
| S.E. of regression | 0.558383 | Akaike info criterion | | -1.055291 |
| Sum squared resid | 4.676866 | Schwarz criterion | | -0.957266 |
| Log likelihood | -13.15198 | F-statistic | | 0.803890 |
| Durbin-Watson stat. | 2.037836 | Prob(F-statistic) | | 0.384097 |

Table 30

| ARCH Test: | | | | |
|---|---|---|---|---|
| F-statistic | 0.663919 | Probability | | 0.663027 |
| Obs*R-squared | 4.181825 | Probability | | 0.523546 |
| LS // Dependent Variable is RESID^2 | | | | |
| Sample(adjusted): 1976 1988 | | | | |
| Included observations: 13 after adjusting endpoints | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 1.018947 | 0.508232 | 2.004884 | 0.0850 |
| RESID^2(-1) | -0.445444 | 0.367843 | -1.210963 | 0.2652 |
| RESID^2(-2) | -0.350751 | 0.361674 | -0.969799 | 0.3645 |
| RESID^2(-3) | -0.291100 | 0.356552 | -0.816430 | 0.4411 |
| RESID^2(-4) | -0.390577 | 0.352597 | -1.107716 | 0.3046 |
| RESID^2(-5) | 0.063656 | 0.361714 | 0.175984 | 0.8653 |
| R-squared | 0.321679 | Mean dependent var | | 0.465781 |
| Adj.R-squared | -0.162836 | S.D. dependent var | | 0.616468 |
| S.E. of regression | 0.664767 | Akaike info criterion | | -0.512598 |
| Sum squared resid | 3.093410 | Schwarz criterion | | -0.251852 |
| Log likelihood | -9.114312 | F-statistic | | 0.663919 |
| Durbin-Watson stat. | 2.071481 | Prob(F-statistic) | | 0.663027 |

From the results above, either first order or fifth order ARCH (autoregressive conditional heteroscedasticity) test, shows there is no indication of heteroscedasticity at 5% level of significance, represented by value of Obs*R-squared : $0.8647 < \chi^2_{(1,\ 0.05)} = 3.841$ for the first order, and Obs*R-squared : $4.182 < \chi^2_{(5,\ 0.05)} = 11.07$, for the fifth order.

Considering that an equation may have a very good statistical fit, but has a very poor simulation fit, the forecasting power is also worth evaluating. The result shows that the regression has also good (historical) forecasting power, suggested among others, by small value of Theil's inequality coefficient of $0.07 \cong 0$, as shown on Table 31 below and Figure 5 above.

Table 31

| Actual: NX Forecast: NXF<br>Sample: 1971 1988<br>Include observations: 18 | |
|---|---|
| Root Mean Squared Error | 0.625238 |
| Mean Absolute Error | 0.497691 |
| Mean Absolute Percentage Error | 40.48597 |
| Theil Inequality Coefficient | 0.073637 |
| Bias Proportion | 0.000000 |
| Variance Proportion | 0.019696 |
| Covariance Proportion | 0.980304 |

The suggested structural break that happen in 1988, can also be verified from the poor expost forecast result for 1971-1993 as shown below:

Table 32

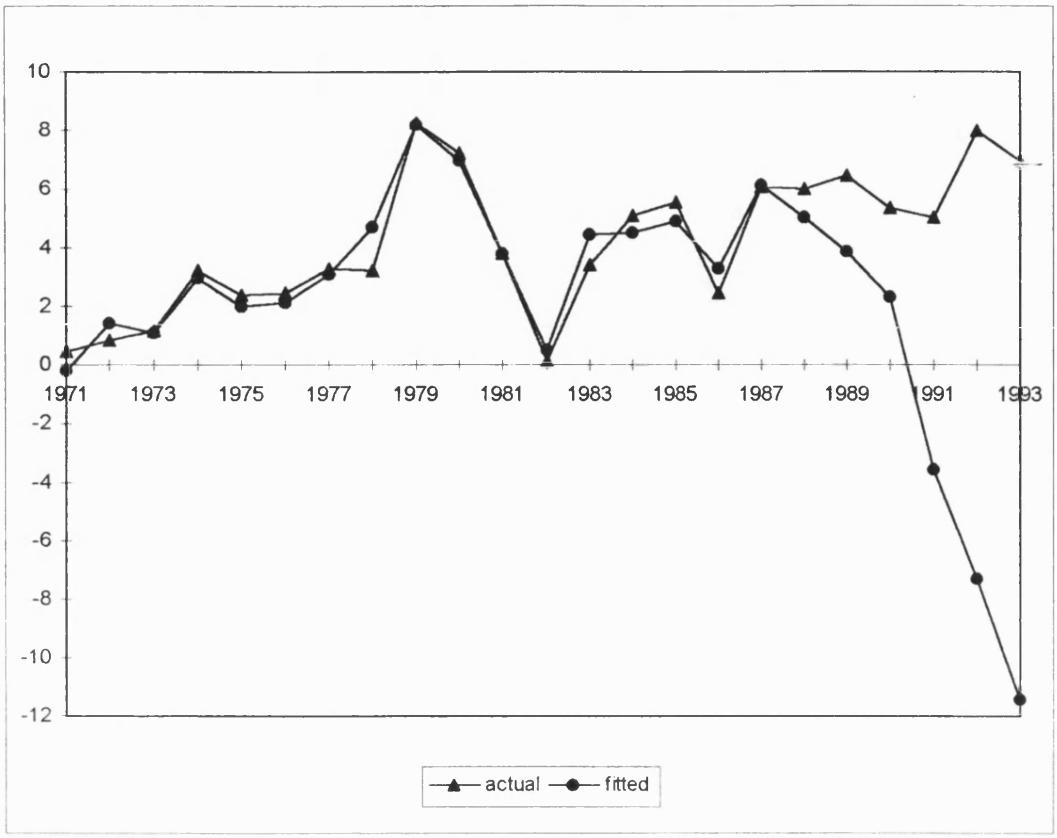
| Actual: NX Forecast: NXF<br>Sample: 1971 1993<br>Include observations: 23 |
|---|

| | |
|---|---|
| Root Mean Squared Error | 5.392187 |
| Mean Absolute Error | 2.472151 |
| Mean Absolute Percentage Error | 63.14396 |
| Theil Inequality Coefficient | 0.557915 |
| Bias Proportion | 0.149178 |
| Variance Proportion | 0.135344 |
| Covariance Proportion | 0.715478 |

Comparing the expost forecast evaluation (Table 32) with the historical forecast (Table 31), it shows that all error measurements of the former increase significantly. The bias proportion which is zero in the historical forecast tends to rise in the expost forecast, meaning the systematic error is increasing. Systematic error measures the extent to which the average value of the simulated and actual series deviate from each other. For any value of Theil's inequality coefficient greater than zero, the ideal distribution of inequality over the three sources is bias proportion = variance proportion = 0 and covariance proportion = 1[4)]. These properties seem come close and applicable to the estimation equation for the period 1971-1988, but not for the whole period 1971-1993. The systematic bias is also captured by the increasing value of the mean (absolute) percentage error.

The corresponding figure below (Figure 7) also support this evidence, shown by fitted and actual values which have been moving in tandem since 1971, start diverging beginning 1987. And balance of trade is better than forecasted.

Figure 7




II. 2. Second version : Trade balance surplus (NX) as a function of primary budget surplus (PBBS) and other variables

The only difference between this version and the previous version is simply to change net resource inflow budget surplus (NRIBS) with primary budget surplus (PBBS), the latter being NRIBS plus net position of central government budget with domestic banking system; central bank and domestic deposit money banks. The reason we make such a distinction has been elaborated in Appendix I paragraph II.

The regression gives the result as follows :

Table 33

| LS // Dependent Variable is NX<br>Sample: 1971 1993<br>Included observations: 23 | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 6.317918 | 10.02102 | 0.630467 | 0.5379 |
| PBBS | -0.135786 | 0.437826 | -0.310136 | 0.7607 |
| TOTY | -0.006617 | 0.026658 | -0.248222 | 0.8073 |
| TBOILR | 0.581151 | 0.251183 | 2.313654 | 0.0353 |
| GDPWI | -0.014287 | 0.158409 | -0.090188 | 0.9293 |
| REER | -0.062188 | 0.032591 | -1.908119 | 0.0757 |
| GDPRL | 0.020357 | 0.110409 | 0.184377 | 0.8562 |
| NDCMA | -0.121993 | 0.172300 | -0.708027 | 0.4898 |
| R-squared | 0.688606 | Mean dependent var | | 4.210841 |
| Adj.R-squared | 0.543289 | S.D. dependent var | | .2.413579 |
| S.E. of regression | 1.631106 | Akaike info criterion | | 1.246725 |
| Sum squared resid | 39.90760 | Schwarz criterion | | 1.641679 |
| Log likelihood | -38.97292 | F-statistic | | 4.738645 |
| Durbin-Watson stat. | 1.306919 | Prob(F-statistic) | | 0.005542 |

After dropping one by one the least significant variables we again come up with similar result as shown in Table 6.

Up to this point, what we can conclude is that neither net resource inflow budget surplus, nor primary budget balance surplus and net domestic credit of monetary authorities credits to domestic private sector through their direct effects, in the period studied, have any influence on trade balance surplus.

II.3. Error Correction Model

Having obtained the cointegrating regression shown on Table 24, it is legitimate to derive an error correction mechanism/model (ECM) which represent the short-run 'disequilibrium' relationship. While the cointegrating regression shows a long-run relationship among variables, ECM represents the short-run or dynamic model. The model is estimated by adopting the 'general to specific' approach, thereby incorporating all the variables and inserting one lagged residual of corresponding long-term equilibrium relationship as the error correction term. The result is as follows:

Table 34

| LS // Dependent Variable is DNX<br>Sample(adjusted): 1972 1988<br>Included observations: 17 after adjusting endpoints | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -0.968591 | 0.524010 | -1.848421 | 0.1017 |
| DNRIBS | -0.040644 | 0.084168 | -0.482889 | 0.6421 |
| DTOTY | -0.017312 | 0.013700 | -1.263723 | 0.2419 |
| DTBOILR | 0.980888 | 0.113248 | 8.661405 | 0.0000 |
| DGDPWI | 0.784456 | 0.146048 | 5.371214 | 0.0007 |
| DREER | -0.022490 | 0.013292 | -1.691979 | 0.1291 |
| DGDPRL | -0.346155 | 0.151632 | -2.282867 | 0.0518 |
| DNDCMA | 0.053677 | 0.101518 | 0.528746 | 0.6113 |
| RES1(-1) | -0.973503 | 0.292741 | -3.325479 | 0.0105 |
| R-squared | 0.972338 | Mean dependent var | | 0.325710 |
| Adj.R-squared | 0.944676 | S.D. dependent var | | 2.403516 |
| S.E. of regression | 0.565335 | Akaike info criterion | | -0.835623 |
| Sum squared resid | 2.556826 | Schwarz criterion | | -0.394510 |
| Log likelihood | -8.019156 | F-statistic | | 35.15039 |
| Durbin-Watson stat. | 1.814070 | Prob(F-statistic) | | 0.000019 |

After dropping one by one the insignificant variables, we finally obtain:

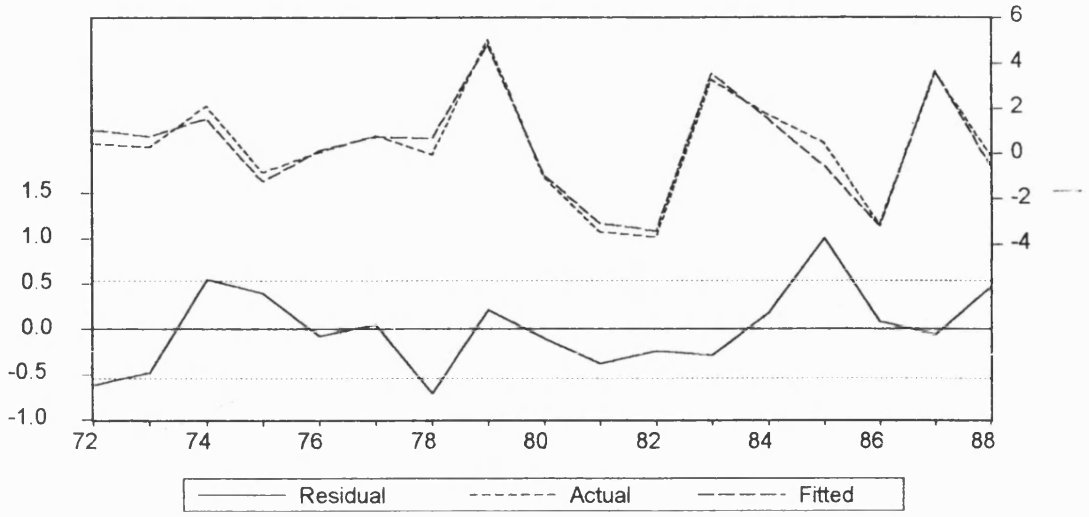
Table 35

| LS // Dependent Variable is DNX<br>Sample(adjusted): 1972 1988<br>Included observations: 17 after adjusting endpoints | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -0.717569 | 0.467854 | -1.533748 | 0.1533 |
| DTBOILR | 0.884280 | 0.082012 | 10.78238 | 0.0000 |
| DGDPWI | 0.772730 | 0.121042 | 6.383986 | 0.0001 |
| DREER | -0.022897 | 0.011623 | -1.970043 | 0.0745 |
| DGDPRL | -0.410938 | 0.122100 | -3.365584 | 0.0063 |
| RES1(-1) | -0.976082 | 0.272282 | -3.584826 | 0.0043 |
| R-squared | 0.965422 | Mean dependent var | | 0.325710 |
| Adj.R-squared | 0.949704 | S.D. dependent var | | 2.403516 |
| S.E. of regression | 0.539030 | Akaike info criterion | | -0.965406 |
| Sum squared resid | 3.196081 | Schwarz criterion | | -0.671330 |
| Log likelihood | -9.916007 | F-statistic | | 61.42372 |
| Durbin-Watson stat. | 1.569249 | Prob(F-statistic) | | 0.000000 |

The result to be produced has the same explanatory variables as that of long run relationship, of the first difference, plus the lagged residuals of the cointegrating regression. The R-squared is larger than that the long-run relationship, except the change in the real exchange rate is now significant at 10% significance level, and with Durbin-Watson value in the indecisive area. The lagged residual is also highly significant.

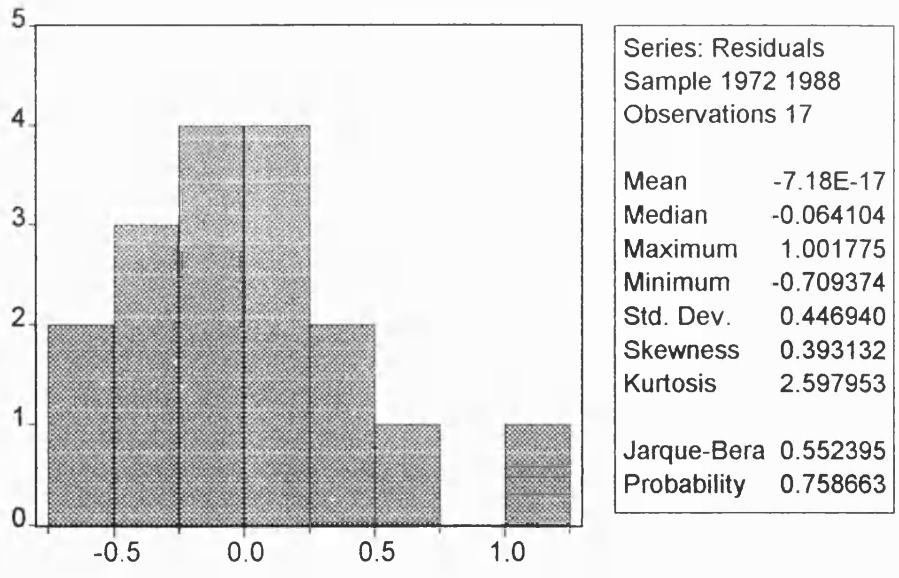
The plot of the actual and fitted values of the estimation is shown on Figure 9 below. It shows the estimation tracks quite well.

Figure 9




Test on the normality also gives relatively good result as shown below, and also with a low Jarque-Bera value:

Figure 10




Test on specification test yields F-statistics of 0.85, as shown on Table 36 below, lower than its critical value $F_{0.05}(3,9) = 3.86$, meaning there is no problem of specification or functional form.

Table 36

| Ramsey RESET Test: | | | |
|---|---|---|---|
| F-statistic | 0.858099 | Probability | 0.500874 |
| Log likelihood ratio | 4.742742 | Probability | 0.191634 |
| LS // Dependent Variable is DNX<br>Sample: 1972 1988<br>Included observations: 17 | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 0.047883 | 0.728787 | 0.065702 | 0.9492 |
| DTBOILR | 0.569235 | 0.229020 | 2.485528 | 0.0378 |
| DGDPWI | 0.517430 | 0.208097 | 2.486484 | 0.0377 |
| DREER | -0.022749 | 0.015600 | -1.458233 | 0.1829 |
| DGDPRL | -0.363868 | 0.129239 | -2.815477 | 0.0227 |
| RES1(-1) | -0.892973 | 0.398040 | -2.243422 | 0.0551 |
| Fitted^2 | 0.001297 | 0.090052 | 0.014401 | 0.9889 |
| Fitted^3 | 0.029849 | 0.022809 | 1.308659 | 0.2270 |
| Fitted^4 | -0.003846 | 0.006268 | -0.613511 | 0.5566 |
| R-squared | 0.973840 | Mean dependent var | | 0.325710 |
| Adj.R-squared | 0.947679 | S.D. dependent var | | 2.403516 |
| S.E. of regression | 0.549773 | Akaike info criterion | | -0.891449 |
| Sum squared resid | 2.418000 | Schwarz criterion | | -0.450336 |
| Log likelihood | -7.544636 | F-statistic | | 37.22592 |
| Durbin-Watson stat. | 2.084288 | Prob(F-statistic) | | 0.000015 |

Tests on heteroscedasticity at 5% level of significance, represented by value of Obs*R-squared : $0.7956 < \chi^2_{(1,\ 0.05)}=3.841$ for the first order and Obs*R-squared : $3.625 < \chi^2_{(5,\ 0.05)}= 11.07$, for the fifth order (see Table 37 and 38 below) show no heteroscedasticity problems existed.

Table 37

| ARCH Test: | | | |
|---|---|---|---|
| F-statistic | 0.732662 | Probability | 0.406434 |
| Obs*R-squared | 0.795687 | Probability | 0.372386 |
| LS // Dependent Variable is RESID^2 | | | |

| Sample(adjusted): 1973 1988<br>Included observations: 16 after adjusting endpoints | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 0.216886 | 0.081191 | 2.671313 | 0.0183 |
| RESID^2(-1) | -0.219023 | 0.255881 | -0.855957 | 0.4064 |
| R-squared | 0.049730 | Mean dependent var | | 0.176127 |
| Adj.R-squared | -0.018146 | S.D. dependent var | | 0.260687 |
| S.E. of regression | 0.263041 | Akaike info criterion | | -2.554419 |
| Sum squared resid | 0.968671 | Schwarz criterion | | -2.457845 |
| Log likelihood | -0.267667 | F-statistic | | 0.732662 |
| Durbin-Watson stat. | 2.161768 | Prob(F-statistic) | | 0.406434 |

Table 38

| ARCH Test: | | | |
|---|---|---|---|
| F-statistic | 0.519543 | Probability | 0.755362 |
| Obs*R-squared | 3.625681 | Probability | 0.604462 |

| LS // Dependent Variable is RESID^2<br>Sample(adjusted): 1977 1988<br>Included observations: 12 after adjusting endpoints | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 0.515854 | 0.301200 | 1.712662 | 0.1376 |
| RESID^2(-1) | -0.439851 | 0.387841 | -1.134101 | 0.3000 |
| RESID^2(-2) | -0.503658 | 0.423612 | -1.188959 | 0.2794 |
| RESID^2(-3) | -0.325453 | 0.436271 | -0.745989 | 0.4839 |
| RESID^2(-4) | -0.168918 | 0.766346 | -0.220419 | 0.8329 |
| RESID^2(-5) | -0.604791 | 0.651139 | -0.928820 | 0.3888 |
| R-squared | 0.302140 | Mean dependent var | | 0.176354 |
| Adj.R-squared | -0.279410 | S.D. dependent var | | 0.296892 |
| S.E. of regression | 0.335818 | Akaike info criterion | | -1.875520 |
| Sum squared resid | 0.676642 | Schwarz criterion | | -1.633066 |
| Log likelihood | 0.225857 | F-statistic | | 0.519543 |
| Durbin-Watson stat. | 2.219817 | Prob(F-statistic) | | 0.755362 |

A good historical forecasting power of the equation besides strongly supported by Figure 9 above, is also indicated by low Theil's coefficient of 0.09, shown below:

Table 39

| Actual: DNX Forecast: DNXF<br>Sample: 1972 1988<br>Include observations: 17 | |
|---|---|
| Root Mean Squared Error | 0.433595 |
| Mean Absolute Error | 0.347449 |
| Mean Absolute Percentage Error | 195.1514 |
| Theil Inequality Coefficient | 0.092877 |
| Bias Proportion | 0.000000 |
| Variance Proportion | 0.008797 |
| Covariance Proportion | 0.991203 |

## FOOTNOTES AND REFERENCES TO APPENDIX II

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[2] R.I.D. Harris, "Using Cointegration Analysis in Economic Modelling", Prentice Hall, 1995, pp. 62-63.

[3] The first order of this test is the most common form, see Cuthbertson, Keith, et.al. *Ibid*, pp. 112.

[4] Robert s. Pindyick & Daniel L. Rubinfeld, "Econometric Models & Economic Forecasts," McGraw-Hill, Third Edition, 1991, p. 341.

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